



CITY OF MORDEN
195 STEPHEN STREET
MORDEN, MB R6M 1V3
T (204) 822-4434

PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK (SITE 2)

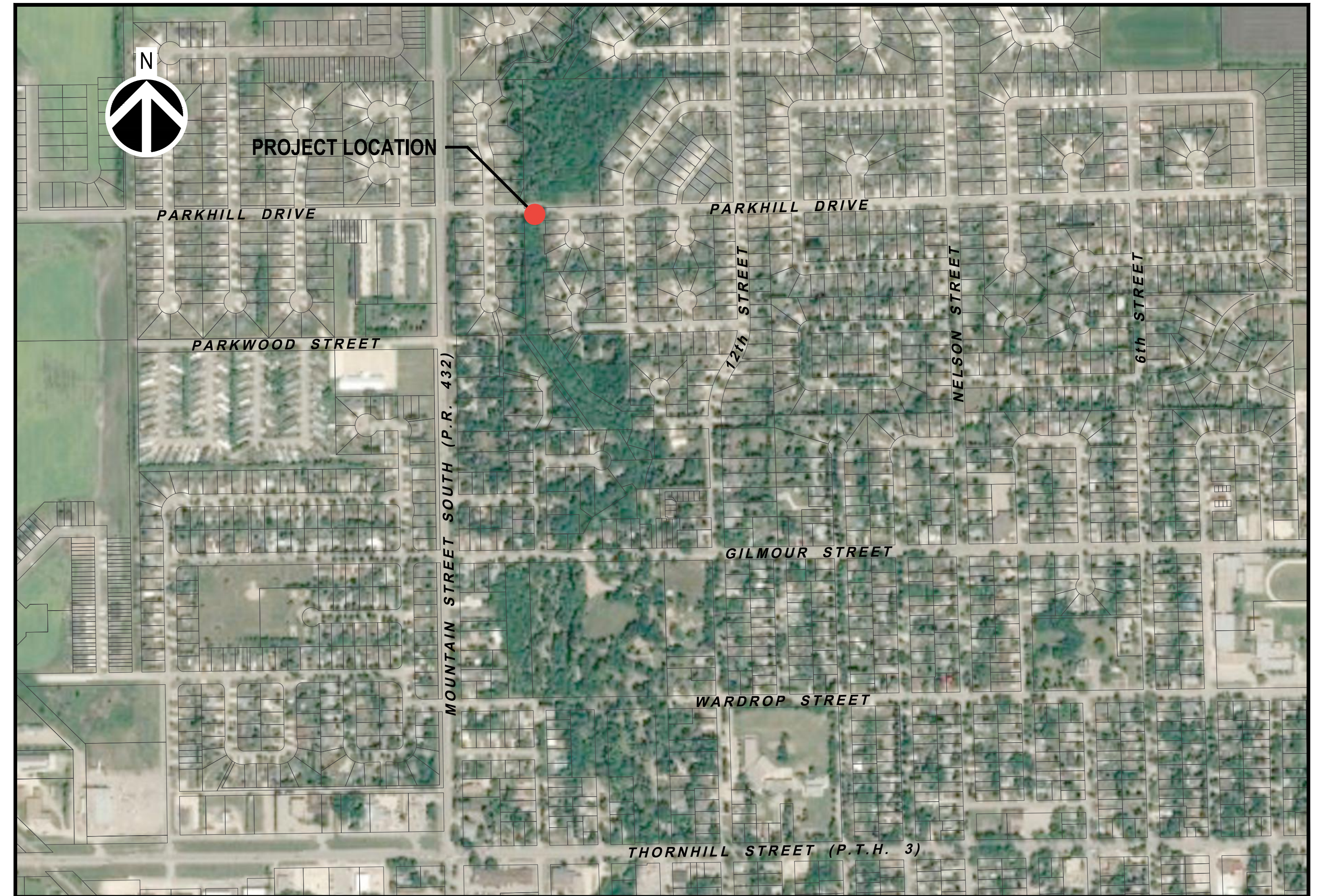
DETAILED DESIGN

Morden, Manitoba

TENDER SET (NOT FOR CONSTRUCTION)

WSP Project No: 221-07931-00

Date: January 30, 2023



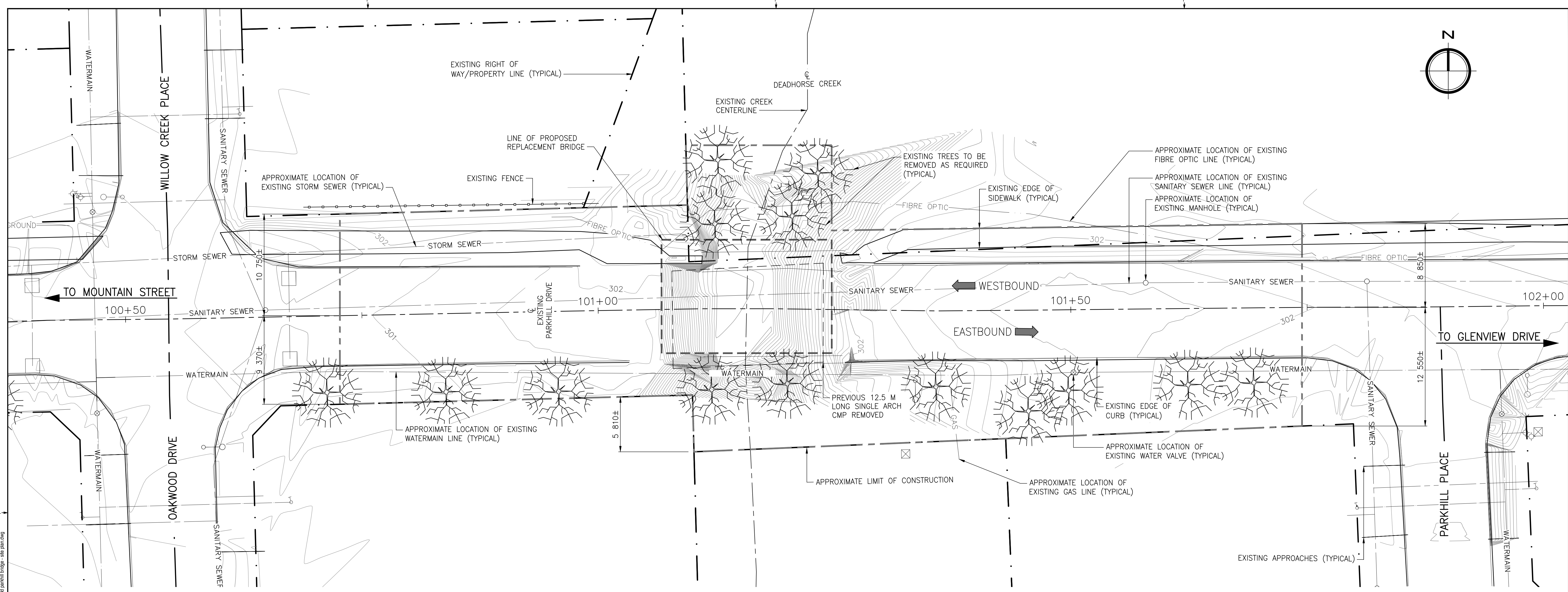
DRAWING LIST

- | | | | |
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CONSTRUCTION**





SITE PLAN

Scale 1:200

LEGEND:

	EXISTING RIGHT OF WAY/PROPERTY LINE
	EXISTING WATERMAIN LINE
	EXISTING SANITARY SEWER LINE
	EXISTING FIBRE OPTIC LINE
	EXISTING GAS LINE
	EXISTING STORM SEWER LINE

UTILITY DISCLAIMER:

LOCATIONS OF UTILITIES AS SHOWN ARE BASED ON READILY AVAILABLE INFORMATION. NO GUARANTEE IS GIVEN THAT ALL UTILITIES ARE SHOWN OR THAT THE GIVEN LOCATIONS ARE EXACT. CONTRACTOR SHALL CONFIRM THE EXISTENCE AND LOCATION OF UTILITIES BY OBTAINING FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

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NOTES:

1. ALL DIMENSIONS TO EXISTING ELEMENTS ARE APPROXIMATE.
2. CONTRACTOR SHALL FIELD VERIFY ALL CONTROLLING DIMENSIONS PRIOR TO CONSTRUCTION.
3. ALL UTILITIES SHOWN ARE APPROXIMATE. THE CONTRACTOR SHALL EXPOSE AND IDENTIFY EXACT LOCATION AND DEPTH OF ALL UTILITIES PRIOR TO CONSTRUCTION OR DEMOLITION.
4. TOPOGRAPHIC INFORMATION PER AUGUST 28, 2022 SURVEY BY KGS AND PER OCTOBER 24, 2022 AND DECEMBER 30, 2022 SURVEY WSP CANADA INC.
5. FOR WORKING POINT LOCATIONS, SEE SHEET 3.

REVISION:	REVISION:
0	2023-01-30
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SEAL:

**ENGINEERS
GEOSCIENTISTS
MANITOBA**
Certificate of Authorization
WSP Canada Inc.
No. 5750

ORIGINAL SCALE: AS NOTED	DATE: 2023-01-30
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PROJECT NUMBER: 221-07931-00

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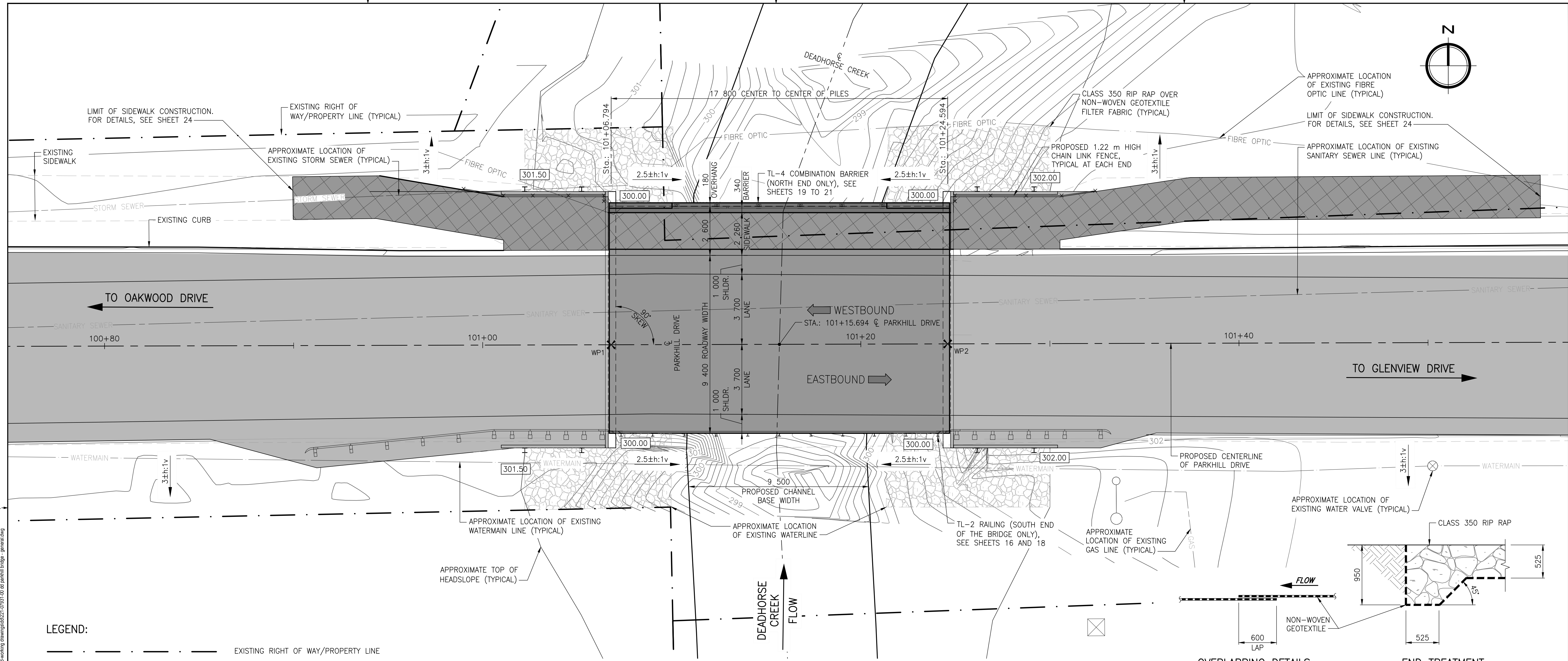
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CLIENT REF. #: --

TITLE: EXISTING SITE PLAN

PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK	
DRAWING NUMBER: 2	REV: 0

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 2023-01-30



GENERAL ARRANGEMENT PLAN

SCALE 1:100

RIP RAP AND GEOTEXTILE DETAILS

SCALE 1:30

- LEGEND:**
- EXISTING RIGHT OF WAY/PROPERTY LINE
 - WATERMAIN --- EXISTING WATERMAIN LINE
 - SANITARY SEWER --- EXISTING SANITARY SEWER LINE
 - FIBRE OPTIC --- EXISTING FIBRE OPTIC LINE
 - GAS --- EXISTING GAS LINE
 - STORM SEWER --- EXISTING STORM SEWER LINE
 - XXX.XX PROPOSED ELEVATION (METRES)

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WORKING POINTS

No.	STATION	NORTHING	EASTING	ELEVATION	LOCATION
WP1	101+06.794	5450226.013	564644.397	301.897	TOP OF ϕ PROPOSED ROADWAY AT ϕ OF SU.1 PILES
WP2	101+24.594	5450225.930	564662.197	302.205	TOP OF ϕ PROPOSED ROADWAY AT ϕ OF SU.2 PILES

ALL POINTS UTM ZONE 14 NORTH, HORIZONTAL DATUM: NAD83CSRS, VERTICAL DATUM: CGVD28, ELLIPSOID: GRS 1980, GEOID (HT2.0): -, CORRECTION SCALE FACTOR = 0.9999600

- NOTES:**
- CONTRACTOR SHALL FIELD VERIFY ALL CONTROLLING DIMENSIONS AND ELEVATIONS, AND EXISTING UTILITIES PRIOR TO CONSTRUCTION.
 - FOR SOUTH ELEVATION AND TYPICAL CROSS SECTION, SEE SHEET 4.
 - FOR APPROXIMATE LIMITS OF WORK, SEE SHEET 2.
 - GEOTEXTILE TO BE PLACED UNDERNEATH ALL RIP RAP TO LIMITS AS SHOWN ON AND IN ACCORDANCE WITH "RIP RAP AND GEOTEXTILE DETAILS" ON THIS SHEET.
 - GEOTEXTILE TO BE NON-WOVEN HEAVY DUTY GEOTEXTILE.
 - FOR PROPOSED ROADWAY ALIGNMENT, PROFILE AND SECTIONS, SEE SHEETS 24 TO 25.

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DATE: 2023-01-30

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DISCIPLINE: BRIDGE

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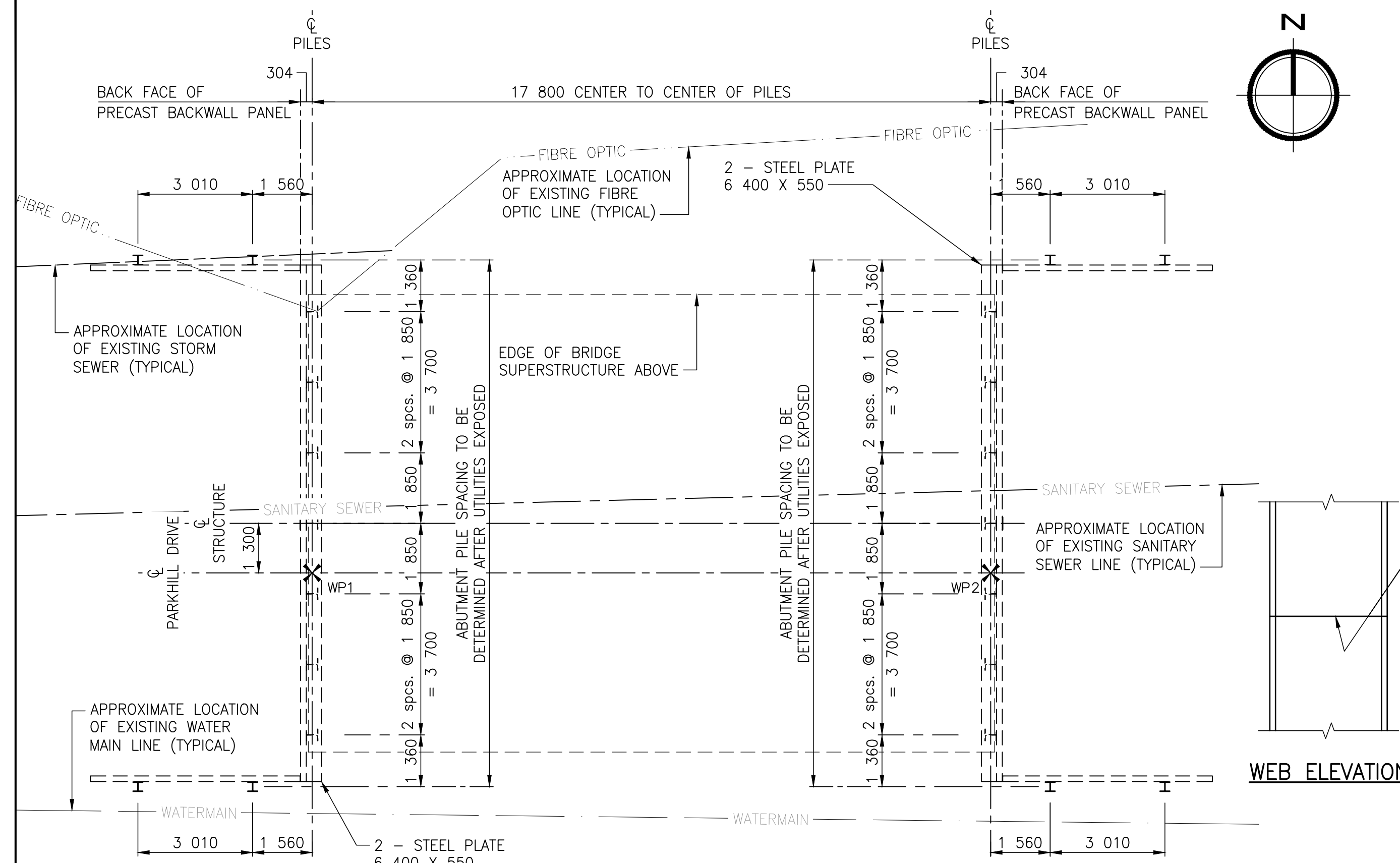
TITLE: GENERAL ARRANGEMENT PLAN

PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

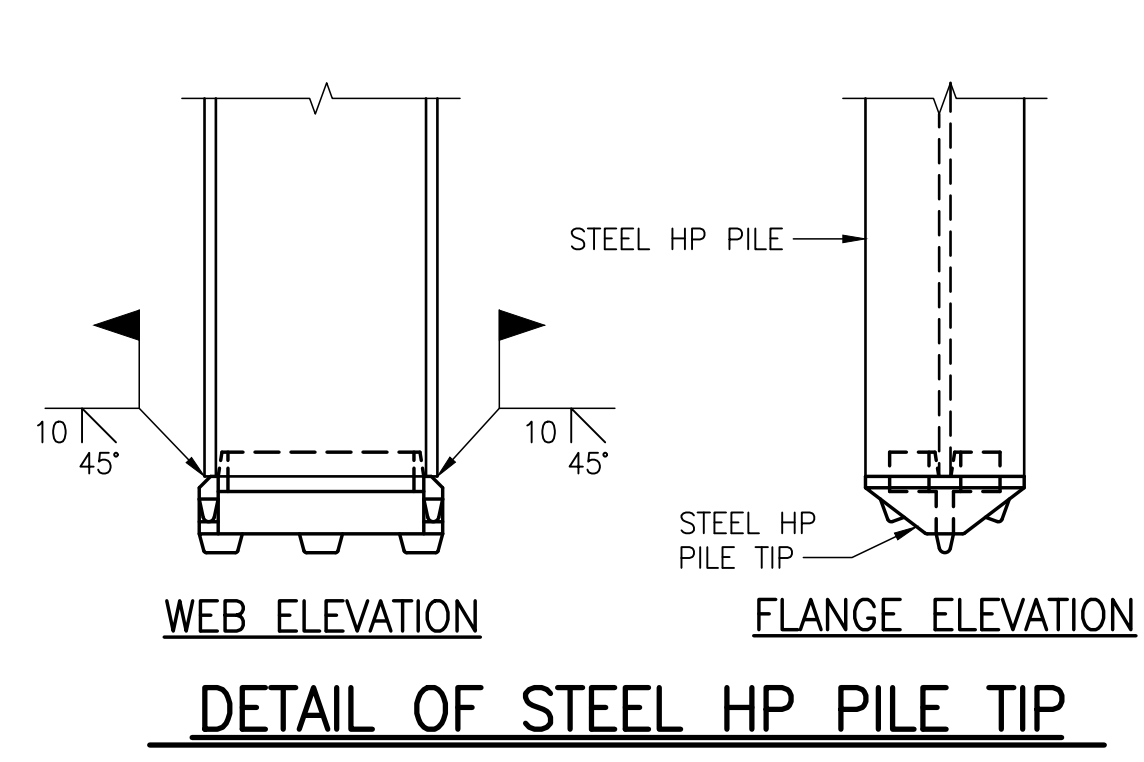
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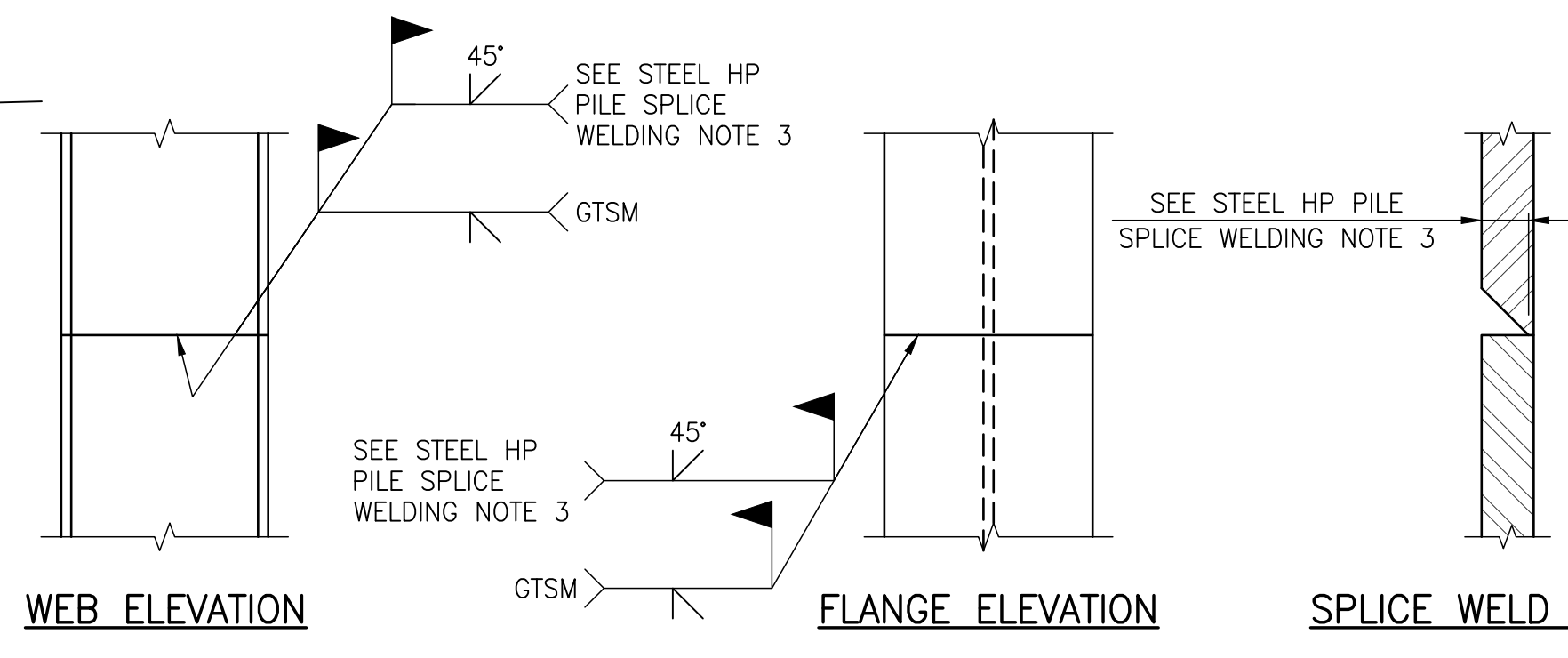
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PILE LAYOUT
SCALE 1:100



DETAIL OF STEEL HP PILE TIP
SCALE 1:110

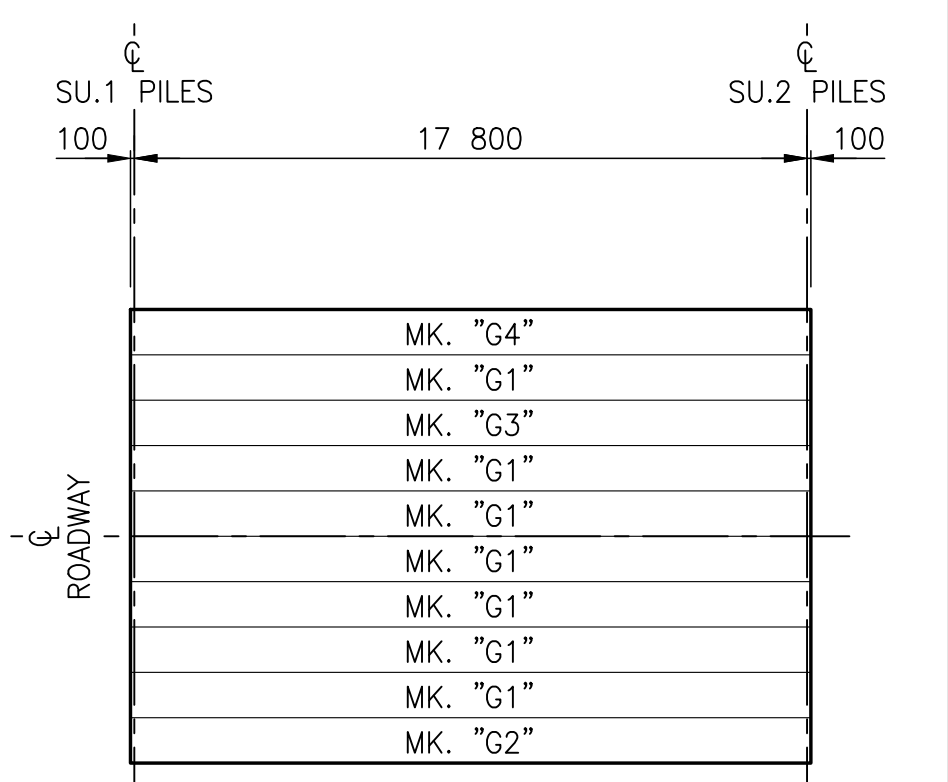


DETAIL OF STEEL HP PILE SPlice
SCALE 1:110

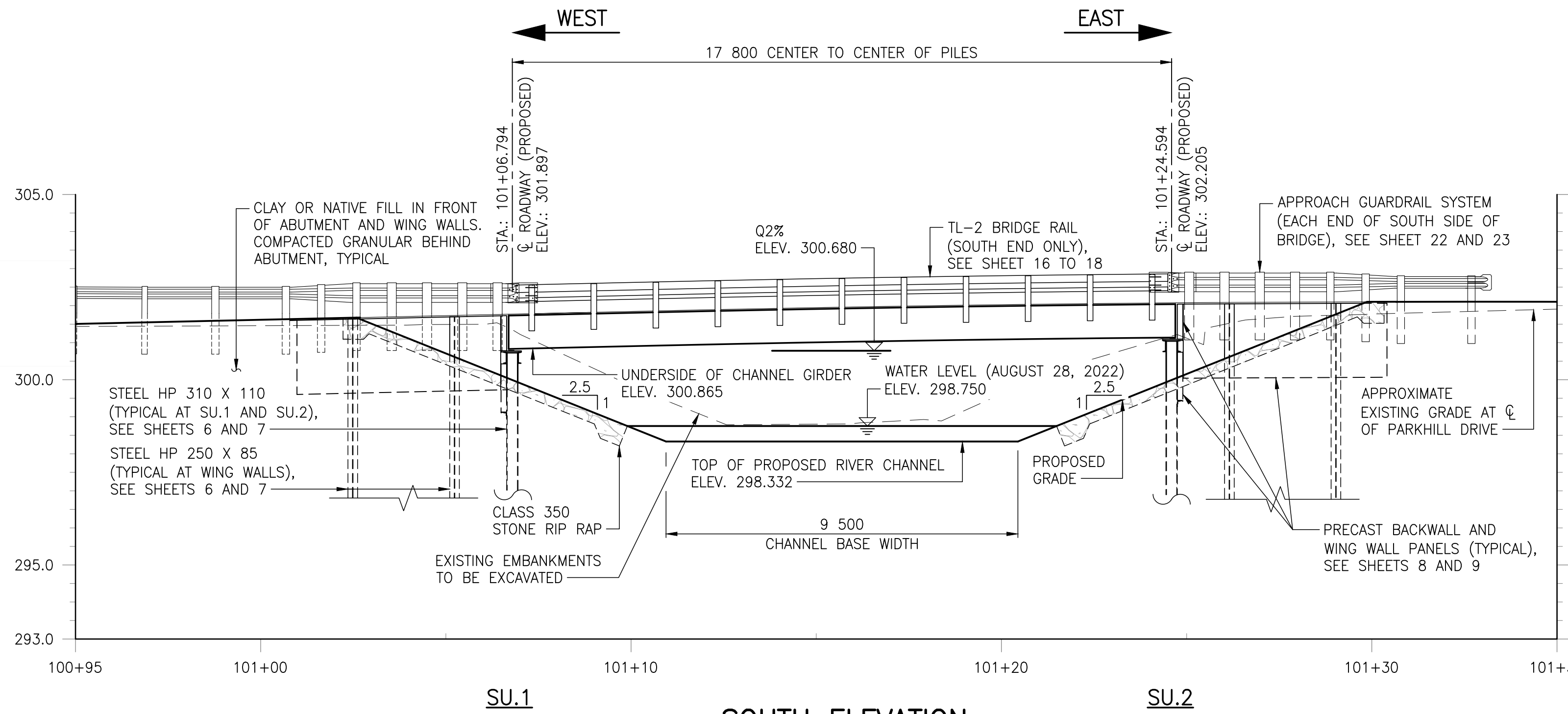
BILL OF STEEL PILES FOR ABUTMENTS				
LOCATION	DESCRIPTION	No. OF PILES	ESTIMATED LENGTH (m)	TOTAL ESTIMATED LENGTH (m)
SU.1	Steel piles - HP 310 x 110	7	15.0	105.00
	Steel piles - HP 250 x 85	4	12.0	48.00
SU.2	Steel piles - HP 310 x 110	7	15.0	105.00
	Steel piles - HP 250 x 85	4	12.0	48.00
SU.1 & SU.2	Hard-Bite Point Model HP-77750-B for HP 310 x 110 piles	12	-	-

NOTES:

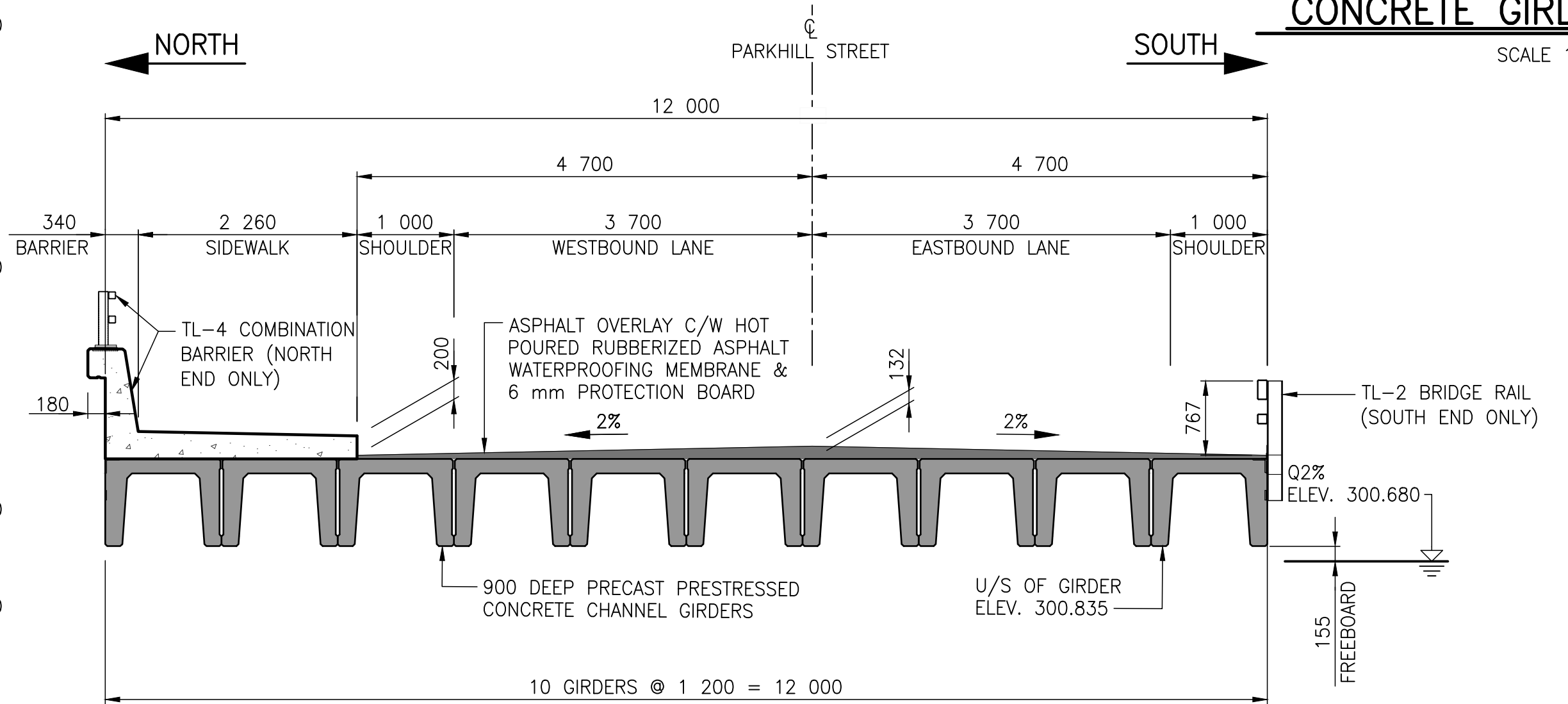
- STEEL HP PILE SPlice WELDING**
- LOW HYDROGEN *E70 SERIES ELECTRODES SHALL BE USED.
 - THE MINIMUM ROOT PASS SHALL BE 6 mm.
 - PREPARATION FOR WELDING REQUIRES 14 mm BEVEL FOR HP 310 PILES AND 13 mm BEVEL FOR HP 250 PILES.
 - WELD BOTH FLANGES AND WEB AS SHOWN. THE INSIDE BEVELING AND WELDS TO BE COMPLETED FIRST.
- * E49 EQUIVALENT METRIC ELECTRODE
- STEEL PILE TIP WELDING**
- EDGES OF HARD-BITE POINT PILE TIP TO BE GROUND ON 45° BEVEL FOR 10 mm.
 - LOW HYDROGEN *E70 SERIES ELECTRODES SHALL BE USED.
 - THE MINIMUM ROOT PASS SHALL BE 6 mm.
- * E49 EQUIVALENT METRIC ELECTRODE



CONCRETE GIRDER KEY PLAN
SCALE 1:200



SOUTH ELEVATION
SCALE 1:200



TYPICAL CROSS SECTION
SCALE 1:50

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REVISION:	REVISION:
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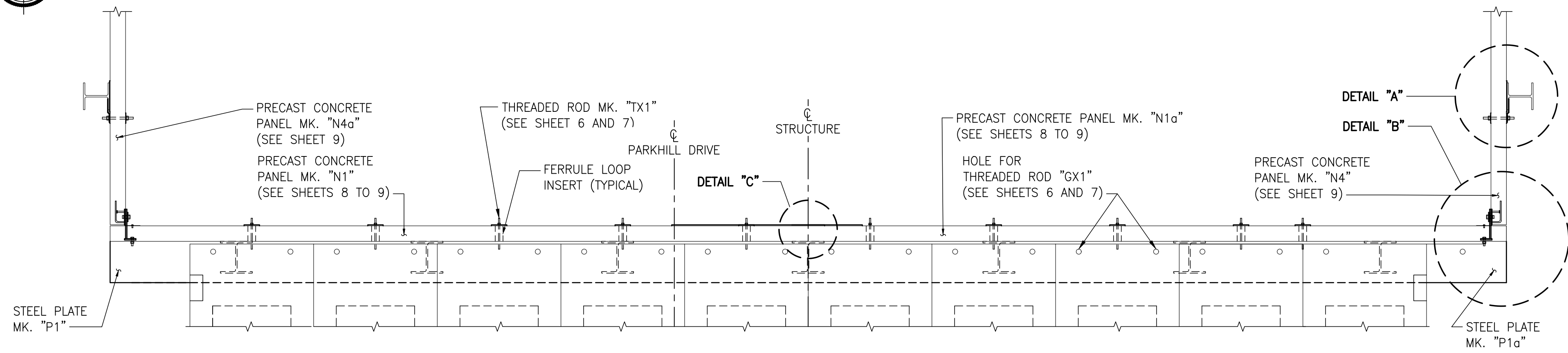
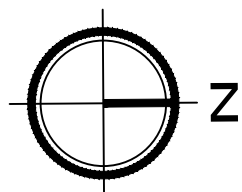
GENERAL ARRANGEMENT ELEVATION, TYPICAL SECTION, AND PILE DETAILS

PROJECT:

PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 4
REV: 0

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PLAN

SHOWING ABUTMENT SU.1 AND SU.2 SIMILAR
ASPHALT AND BRIDGE RAILING NOT SHOWN FOR CLARITY
SCALE 1:30

SOUTH

NORTH

STRUCTURE

OUT TO OUT OF GIRDERS = 12 000

PARKHILL DRIVE

PRECAST CONCRETE
PANEL MK. "N1"
(SEE SHEETS 8 TO 9)

PRECAST CONCRETE
PANEL MK. "N1a"
(SEE SHEETS 8 TO 9)

STEEL PLATE
MK. "P1a"

TOP OF STEEL
SU.1 ELEV. 300.835
SU.2 ELEV. 301.145

PRECAST CONCRETE
PANEL MK. "N3"
(SEE SHEETS 8 TO 9)

1125
(TYPICAL)
PLATE

THREADED ROD
MK. "TX2"
(TYPICAL)

PRECAST CONCRETE PANEL MK. "N2"
(SEE SHEETS 8 TO 9)

6 775

8 625

6 775

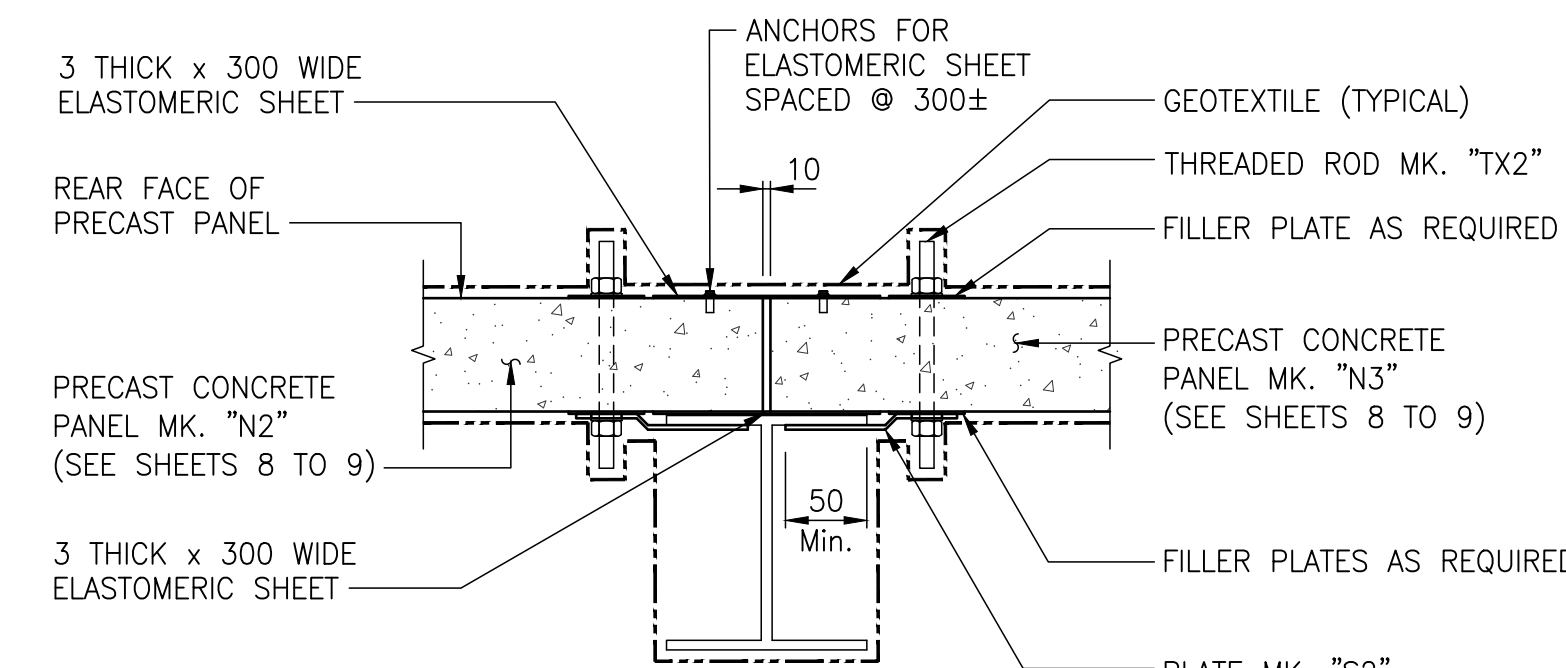
4 925

FRONT VIEW AT ABUTMENT

BRIDGE RAILING NOT SHOWN FOR CLARITY
SCALE 1:30

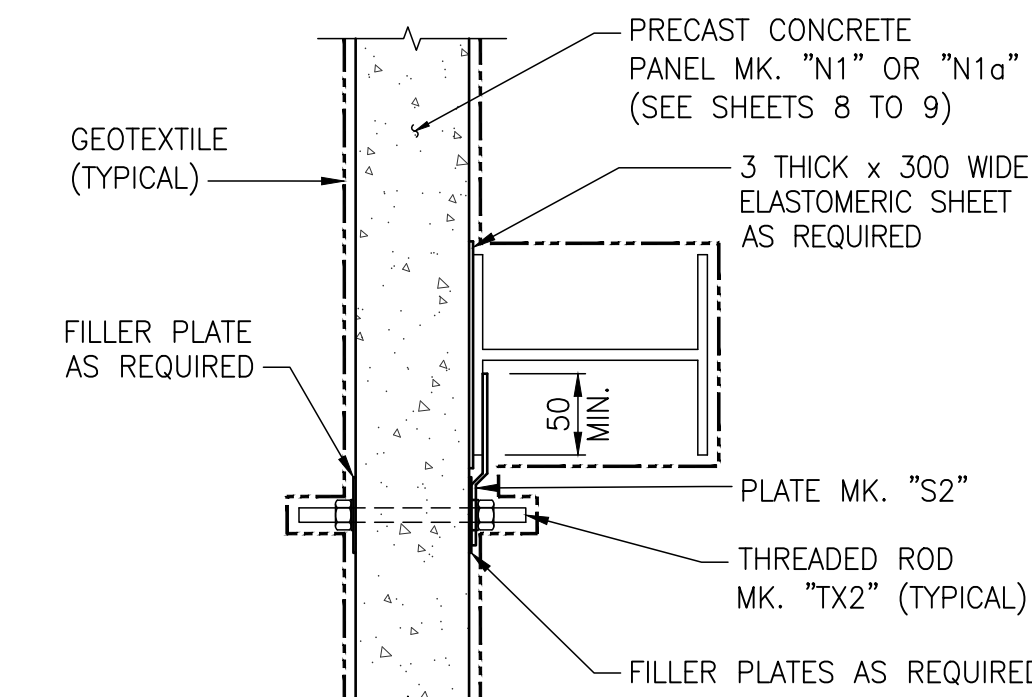
NOTES

1. THE CONTRACTOR SHALL FIELD DRILL 22 Ø HOLES IN THE PRECAST PANELS FOR THREADED RODS MK. "TX2". SHOULD REBAR BE ENCOUNTERED, ABANDON HOLE, PATCH AND DRILL IN NEW LOCATION. REBAR LOCATIONS ARE MARKED ON THE PANELS BY THE PANEL FABRICATOR.
2. BACK FACES OF THE UPPER AND LOWER BALLAST WALLS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE.
3. THE CONTRACTOR SHALL ENSURE THAT THE UPPER BALLAST WALLS ARE PLACED WITH THE EDGE 5 mm FROM THE CL OF ROADWAY.
4. FOR SECTION B-B, SEE SHEET 6.



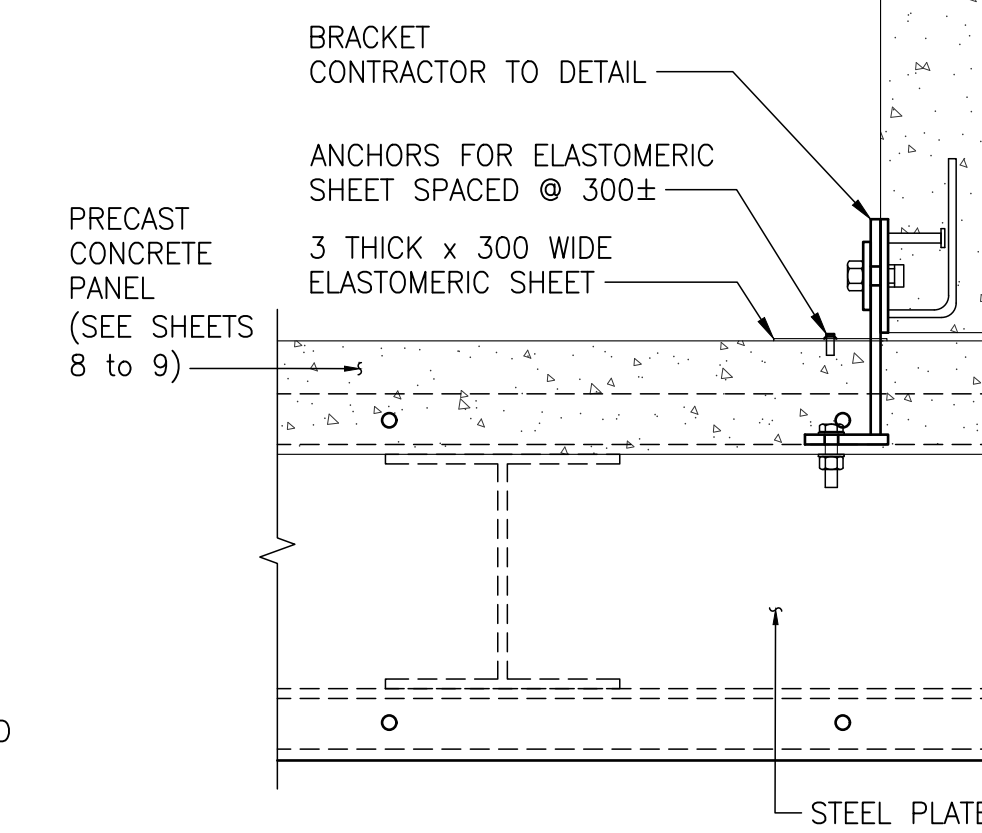
SECTION A-A

SCALE 1:10



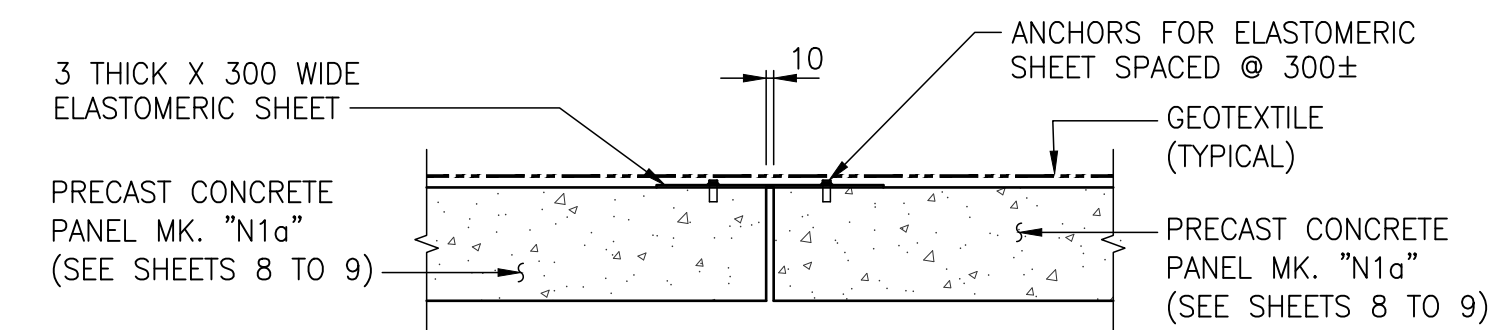
DETAIL "A"

SCALE 1:10



DETAIL "B"

SCALE 1:10



DETAIL "C"

SCALE 1:10

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25mm

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TITLE:

**ABUTMENT ELEVATION
AND DETAILS**

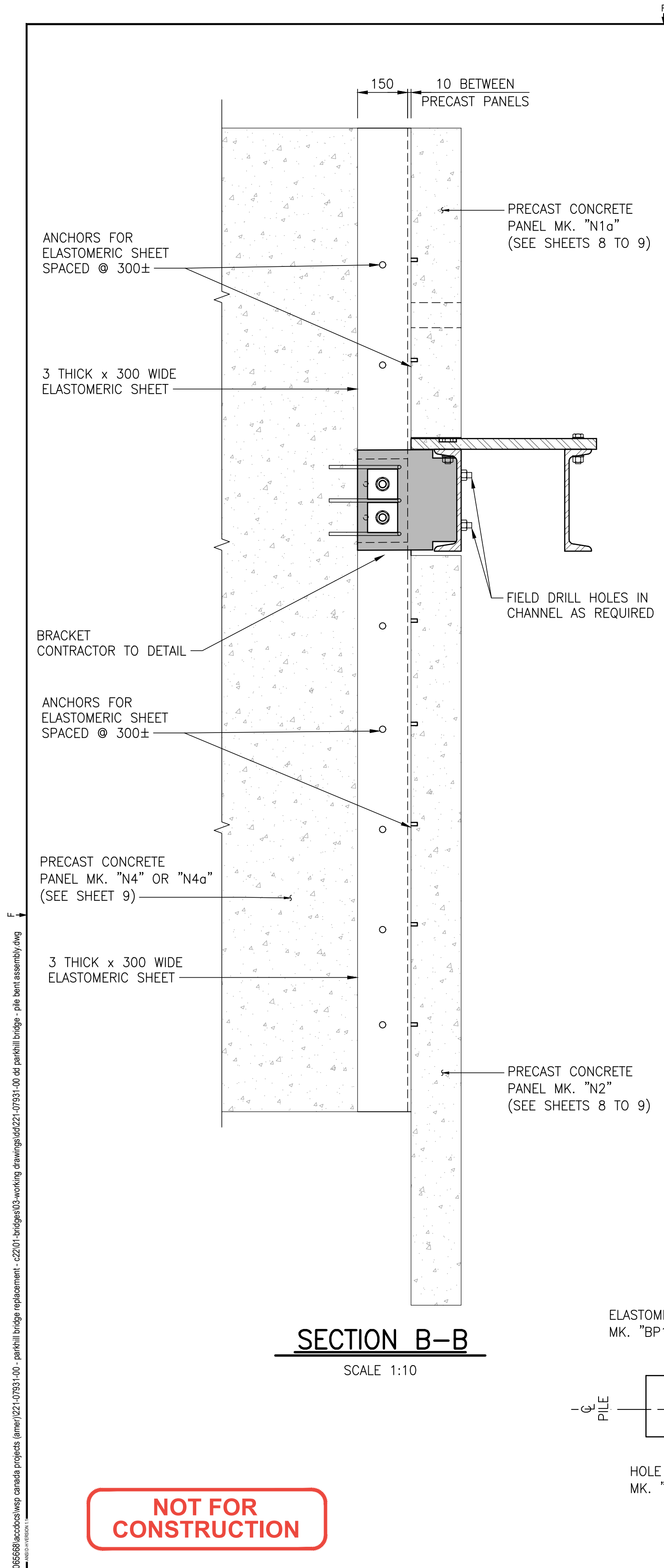
PROJECT:

**PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK**

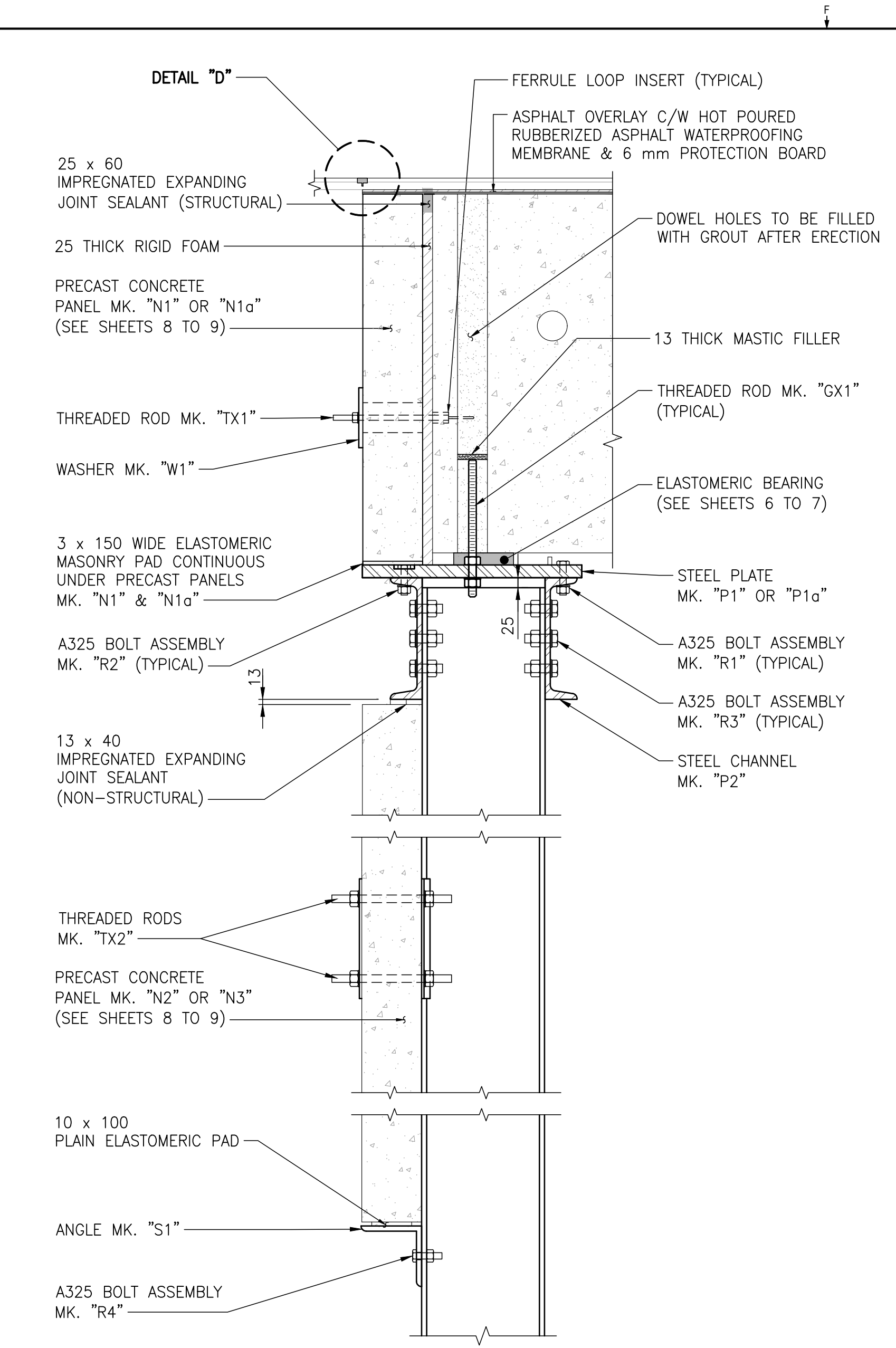
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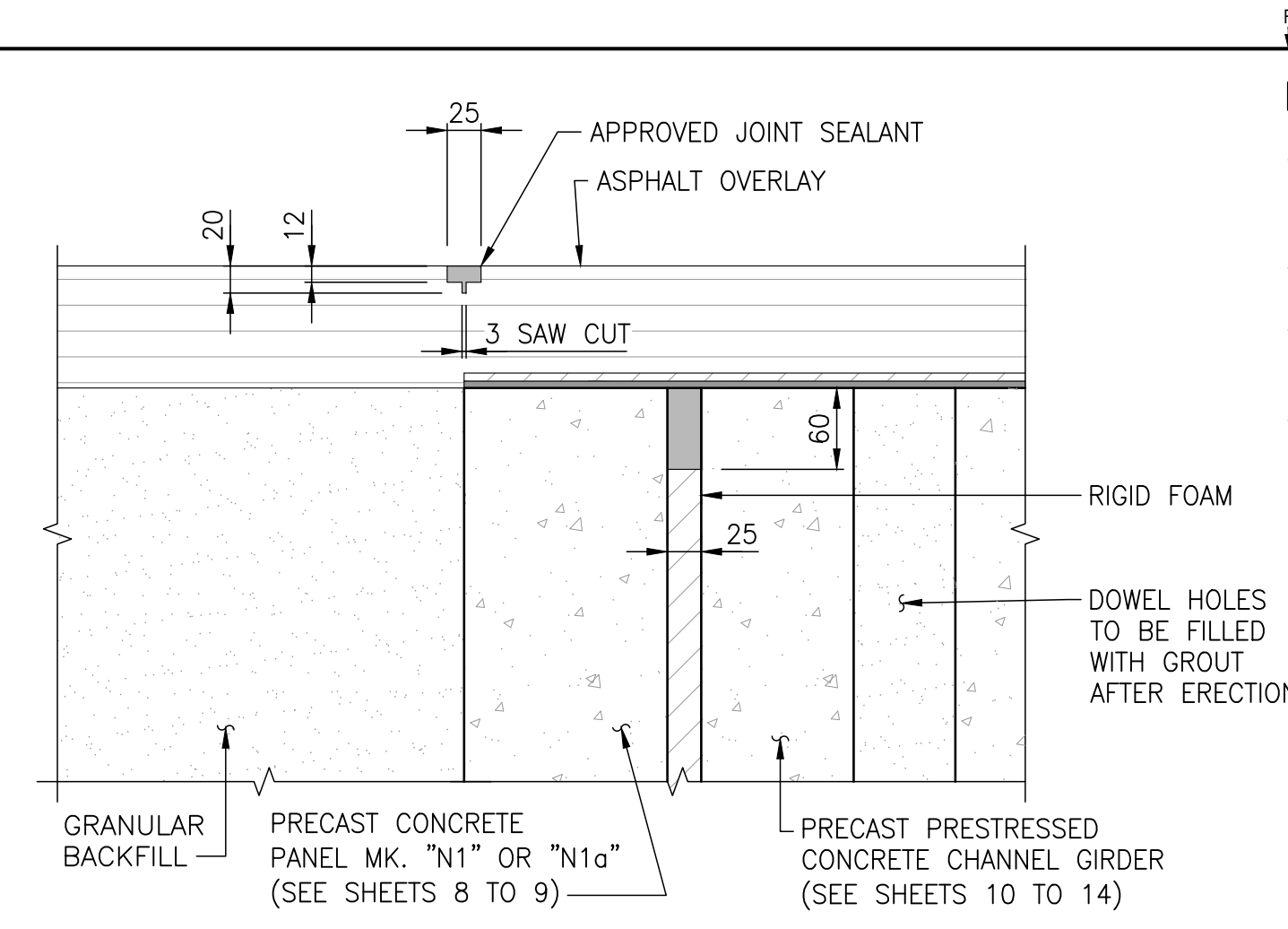
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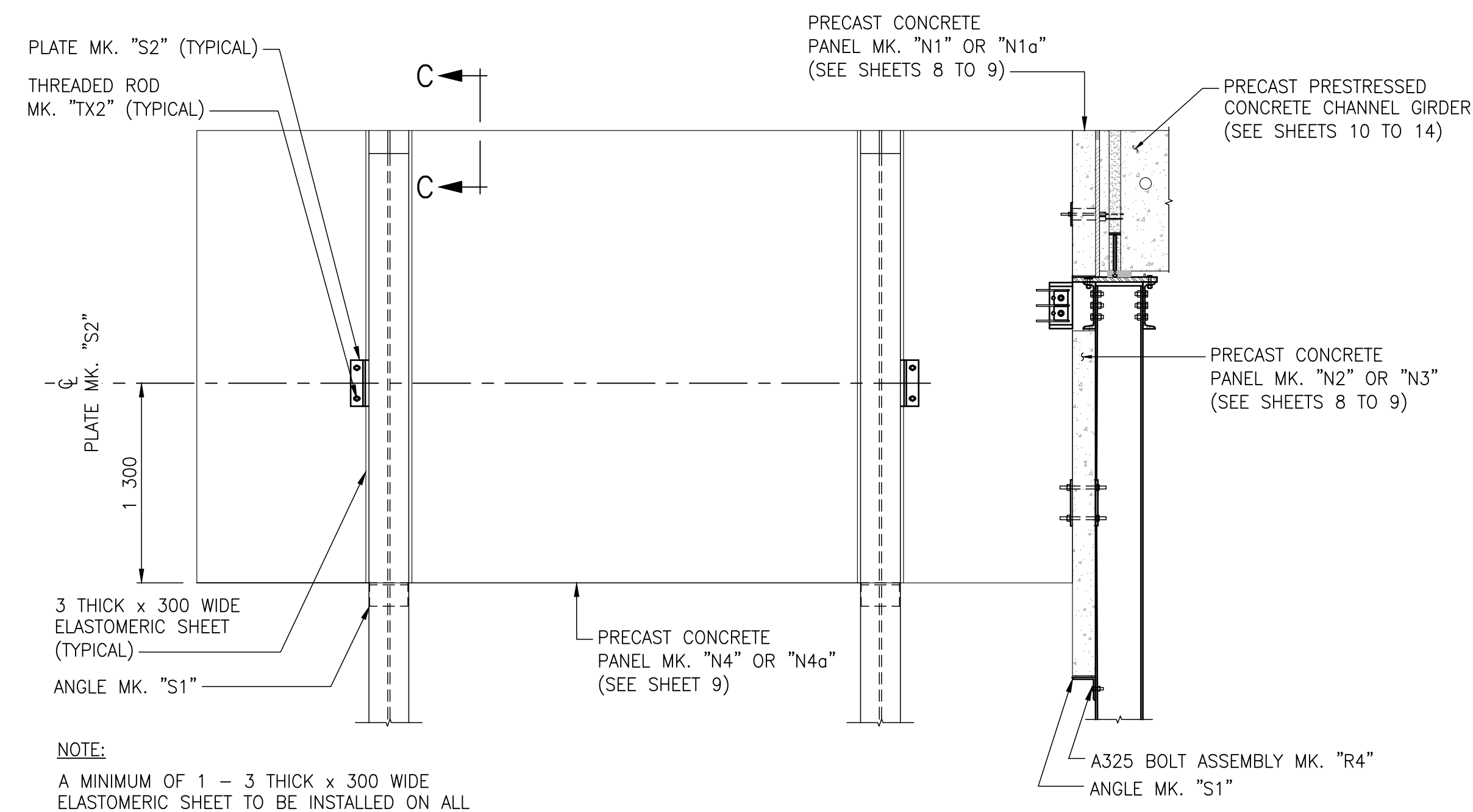
SECTION B-B
SCALE 1:10



SECTION AT ABUTMENT
SCALE 1:10

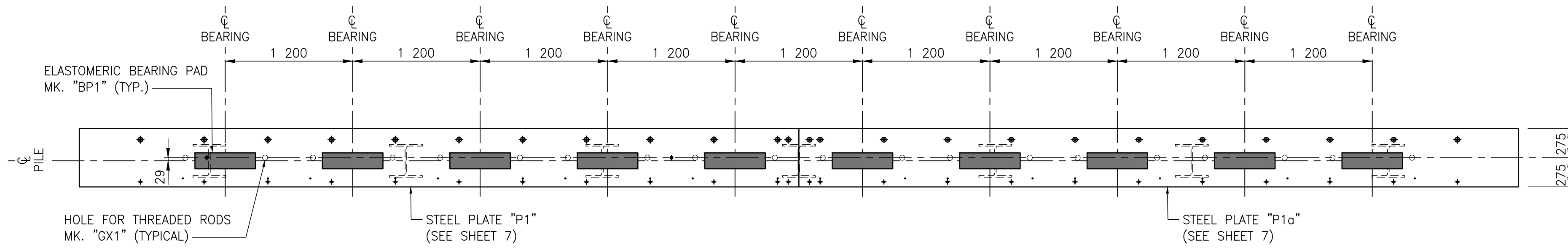


DETAIL "D"
SCALE 1:5

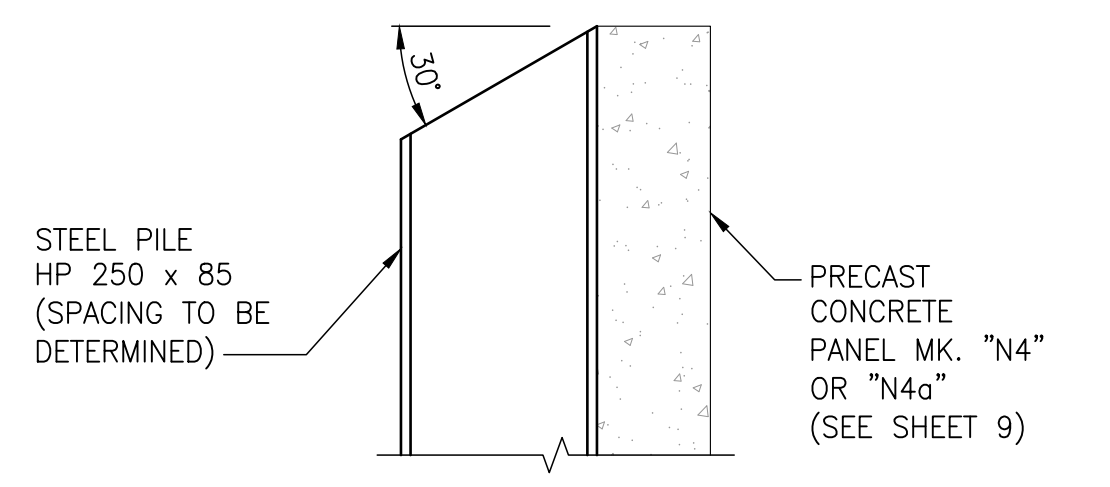


SIDE ELEVATION
SCALE 1:30
BRIDGE RAILING NOT SHOWN FOR CLARITY

NOTE:
A MINIMUM OF 1 - 3 THICK x 300 WIDE ELASTOMERIC SHEET TO BE INSTALLED ON ALL WINGWALL AND BALLAST WALL PILES (FIELD CUT LENGTH OF SHEET REQUIRED FOR BALLAST WALL PILES.) SHEETS TO BE BONDED TO PILE OR PANEL WITH APPROVED ADHESIVE. ADDITIONAL SHEETS TO BE PLACED AS REQUIRED. FIELD CUT ADDITIONAL SHEETS TO FIT IF REQUIRED.



ABUTMENT BEARING PLAN
SCALE 1:30



SECTION C-C
SCALE 1:10
TYPICAL FOR STEEL PILES HP250 x 85 FOR WINGWALL PRECAST PANELS

NOTES

1. WHEN GROUTING DOWEL HOLES IN GIRDERS, ENSURE THAT THERE IS NO GROUT BETWEEN BOTTOM OF GIRDER AND BEARING PLATE.
2. APPLY GALVALLOY TO ALL AREAS WHERE GALVANIZING HAS BEEN DAMAGED.
3. IMPREGNATED EXPANDING JOINT SEALANT SHALL BE INSTALLED AS PER MANUFACTURER'S RECOMMENDATIONS.
4. FOR LOCATION OF SECTION B-B, SEE SHEET 5.

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DESCRIPTION	BY

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No. 5750

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ORIGINAL SCALE: AS NOTED

APPROVED BY: MB

CHECKED BY: EH

DRAWN BY (OPTIONAL): KD

DATE: 2023-01-30

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

25mm

DISCIPLINE: BRIDGE

wsp

WSP Canada Inc.
1600 Buffalo Place, Winnipeg, Manitoba R3T 6B8
T 204-477-6650 | www.wsp.com

PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE:

**PILE BENT ASSEMBLY DETAILS
AND BEARING LAYOUT**

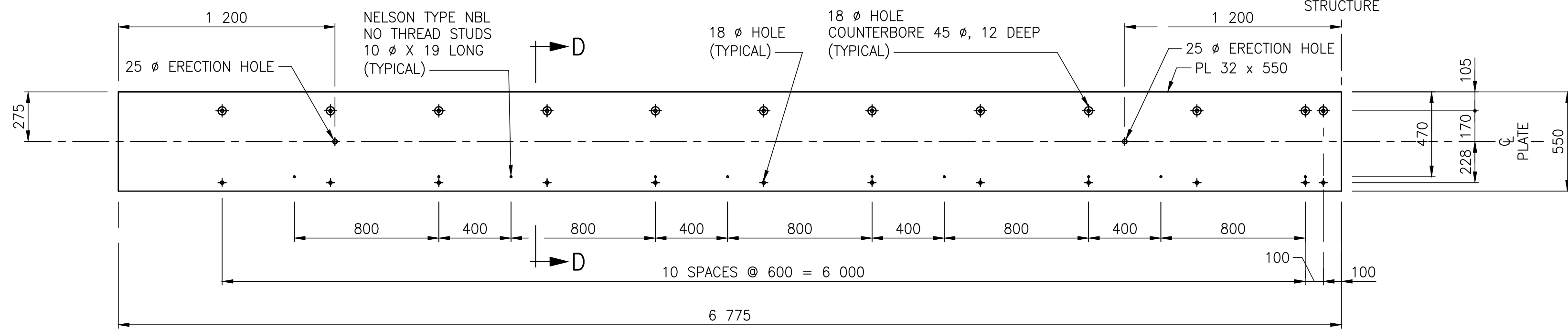
PROJECT:

**PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK**

DRAWING NUMBER: 6

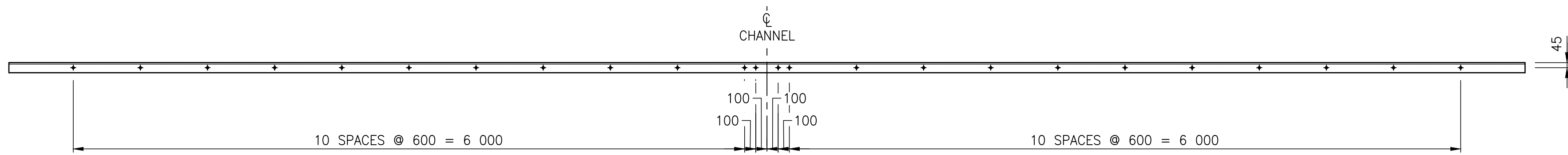
REV: 0

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 2023-01-30 10:00:00 AM

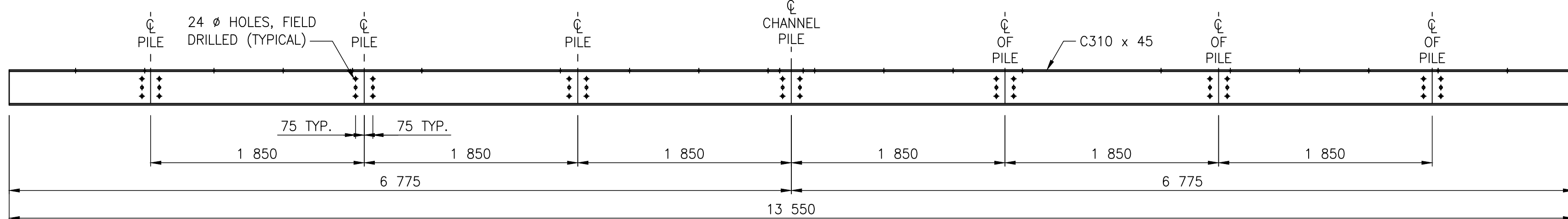


PLAN
STEEL PLATE Mk. "P1" & "P1a"

"P1" SHOWN, "P1a" OPPOSITE HAND
SCALE 1:20
NOTE : HOLES FOR GIRDER THREADED RODS TO BE FIELD DRILLED



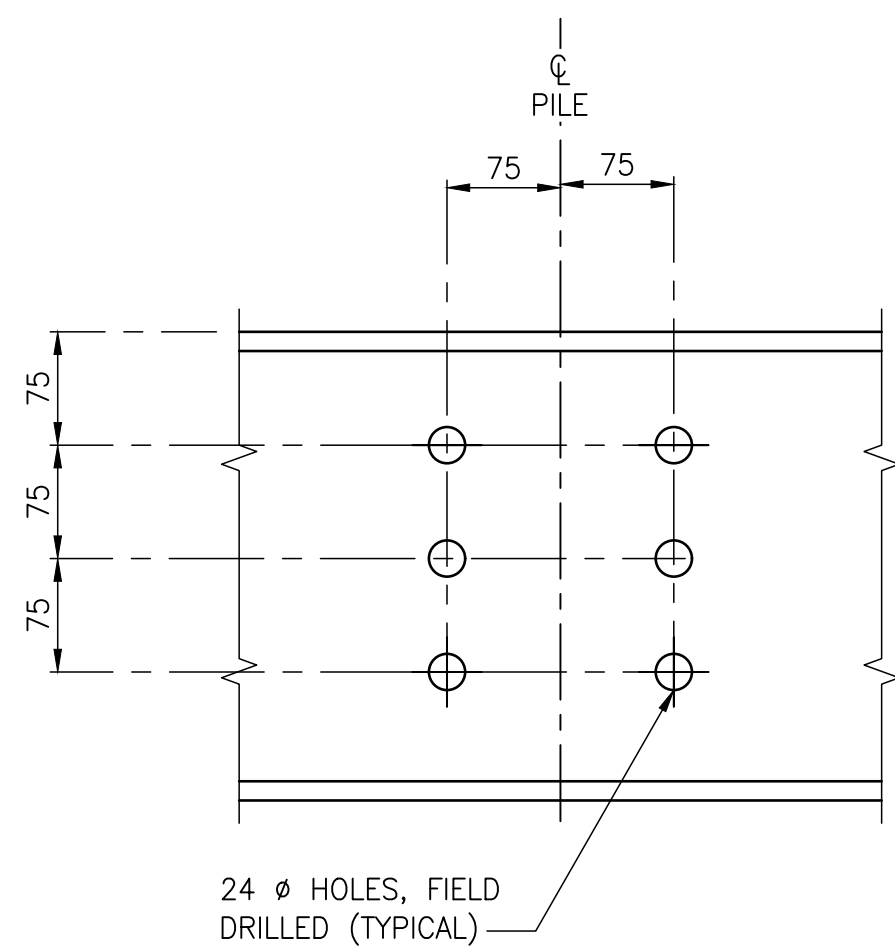
PLAN



ELEVATION

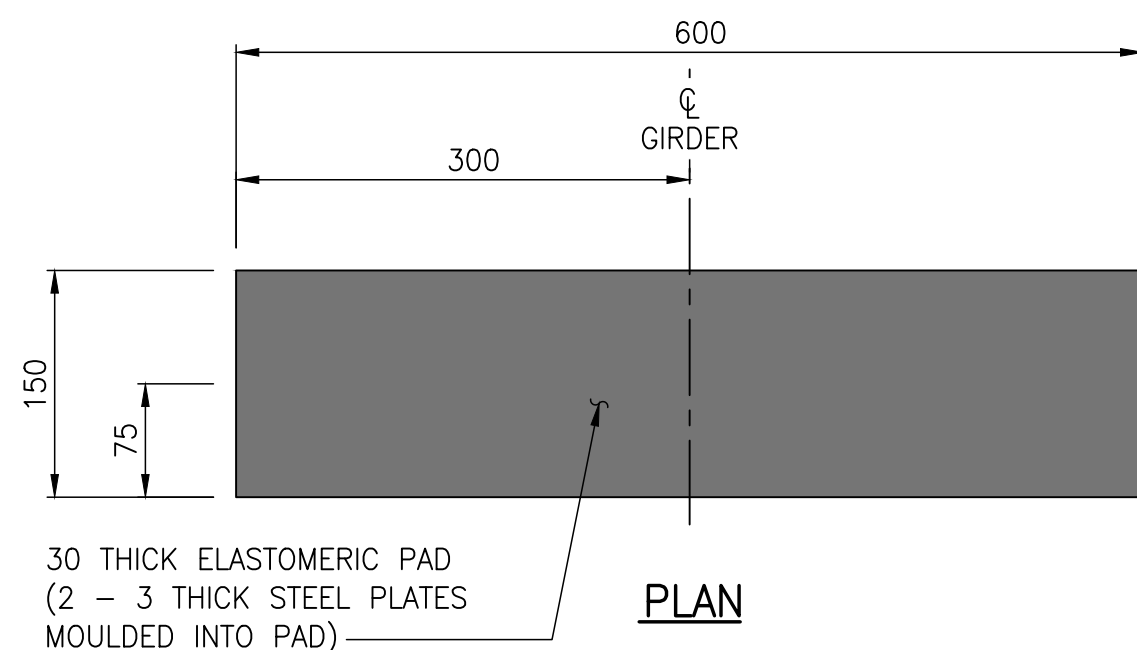
STEEL CHANNEL Mk. "P2"

SCALE 1:30



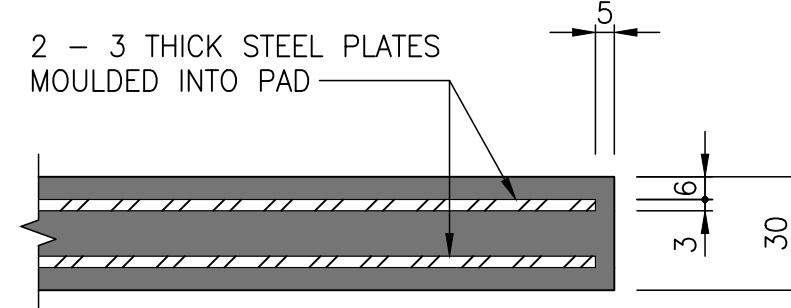
DETAIL "E"

SCALE 1:5

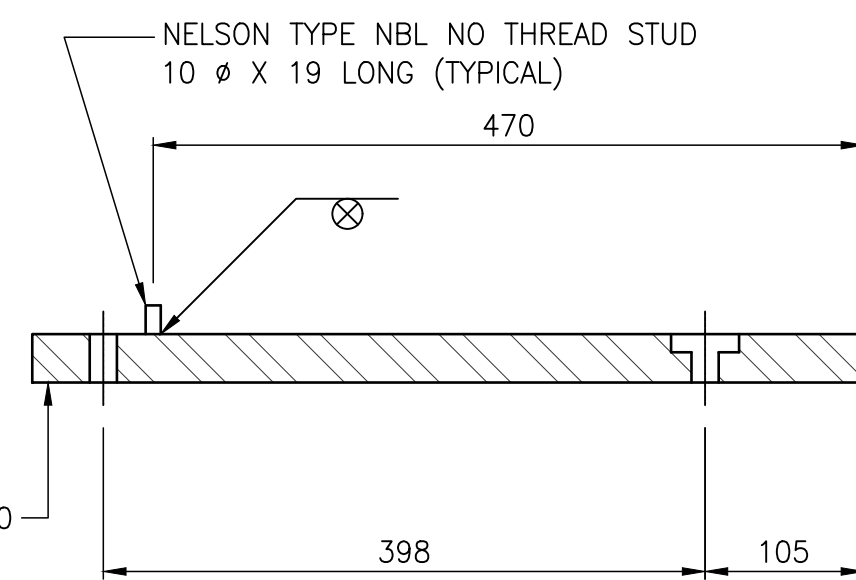


PLAN

ELASTOMERIC BEARINGS



PARTIAL CROSS-SECTION



SECTION D-D

SCALE 1:5

NOT FOR CONSTRUCTION

BILL OF MISCELLANEOUS METAL FOR TWO ABUTMENTS

MK.	NO.	DESCRIPTION	SIZE	MASS PER UNIT	TOTAL MASS
P1	2	STEEL PLATE FABRICATED FROM:			1 872.30
		STEEL PLATE	1 - PL550 x 32, 6 775 LONG - AS DETAILED	936.034	
		STUD ANCHOR	10 - NELSON TYPE 'NBL', NO THREAD STUD, 10 Ø, 19 LONG - AS DETAILED	0.117	
		TOTAL		936.151	
P1a	2	STEEL PLATE FABRICATED FROM:			1 872.30
		STEEL PLATE	1 - PL550 x 32, 6 775 LONG - AS DETAILED	936.034	
		STUD ANCHOR	10 - NELSON TYPE 'NBL', NO THREAD STUD, 10 Ø, 19 LONG - AS DETAILED	0.117	
		TOTAL		936.151	
P2	4	STEEL CHANNEL - GALVANIZED	C310 x 45, 13 550 LONG - AS DETAILED	605.685	2 422.74
S1	22	RETAINING ANGLE - GALVANIZED	L152 x 152 x 13, 250 LONG	7.250	159.50
S2	16	PLATE - GALVANIZED	PL300 x 6 THICK BENT PLATE FILLER PLATES AS REQUIRED	3.223	51.57
R1	48	BOLTS - GALVANIZED	16 Ø x 89 ASTM A325 HEX BOLT C/W 1 - GRADE DH HEAVY HEX NUT 1 - HARDENED BEVEL WASHER - GALVANIZED	0.245 0.054 0.110	11.76 2.59 5.28
R2	48	BOLTS - GALVANIZED	16 Ø x 76 ASTM A325 HEX BOLT C/W 1 - GRADE DH HEAVY HEX NUT 1 - HARDENED BEVEL WASHER - GALVANIZED	0.225 0.054 0.110	10.80 0.259 48.00
R3	168	BOLTS - GALVANIZED	22 Ø x 64 ASTM A325 HEX BOLT C/W 1 - GRADE DH HEAVY HEX NUT 1 - F436 HARDENED WASHER	0.461 0.135 0.032	77.45 22.68 5.38
R4	44	BOLTS - GALVANIZED	16 Ø x 64 ASTM A325 HEX BOLT C/W 1 - GRADE DH HEAVY HEX NUT 1 - F436 HARDENED WASHER	0.205 0.054 0.014	9.02 2.38 0.62
GX1	40	THREADED ROD - GALVANIZED	19 Ø, 400 LONG ASTM F1554 C/W 2 - HEAVY HEX NUT	0.940 0.090	37.60 3.60
TX1	20	THREADED ROD - GALVANIZED	13 Ø, 300 LONG THREADED ROD C/W 1 - STAINLESS STEEL STRUCTURAL PLATE WASHER 150x10, 150 LG. 1 - STANDARD FLAT WASHER - GALVANIZED 1 - STANDARD LOCK WASHER - GALVANIZED	0.240 1.766 0.010 0.020	4.80 35.32 0.20 0.40
TX2	32	THREADED ROD - GALVANIZED	19 Ø, 300 LONG THREADED ROD C/W 2 - HEX NUTS 1 - STANDARD FLAT WASHER - GALVANIZED 1 - STANDARD LOCK WASHER - GALVANIZED	0.660 0.020 0.022	21.12 0.64 0.70
TOTAL MASS:					6 681.34 kg

NOTES:

- ALL MATERIAL NOTED IN THE ABOVE BILL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123, A153 & A143 FOR A MINIMUM NET RETENTION OF 610 G/m² UNLESS OTHERWISE STATED IN THE SPECIFIED MATERIALS ASTM STANDARDS. THE FABRICATOR AND GALVANIZER SHALL SAFEGUARD AGAINST EMBRITTLMENT USING RECOMMENDED PRACTICES FROM APPLICABLE STANDARDS.
- SEAL ALL WELDS PRIOR TO GALVANIZING.
- APPLY GALVALLOY TO ALL FIELD WELDS AND AREAS WHERE GALVANIZING HAS BEEN DAMAGED.
- ALL BOLTS AND THREADED ROD IN THE ABOVE BILL SHALL BE IMPERIAL THREAD.

BILL OF BEARINGS FOR TWO ABUTMENTS

MK.	QTY.	LOCATION	DESCRIPTION	SIZE	LENGTH	REMARKS
BP1	10	ABUTMENT - SU.1	ELASTOMERIC BEARINGS	600 x 150 x 30	N/A	AS DETAILED
BP1	10	ABUTMENT - SU.2	ELASTOMERIC BEARINGS	600 x 150 x 30	N/A	AS DETAILED
TOTAL QUANTITY = 20						

NOTES:

- ELASTOMER IN THE ABOVE BILL SHALL BE AASHTO LOW TEMPERATURE GRADE 5 WITH A MINIMUM SHEAR MODULUS G > 0.9 MPa AND A 60 DUROMETER SHORE A HARDNESS.
- STEEL SHIMS SHALL BE 3mm THICK AND CONFORM TO GRADE A36 STEEL.

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

SEAL:

**ENGINEERS
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MANITOBA**
Certificate of Authorization
WSP Canada Inc.
No. 5750

ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): KD
DATE: 2023-01-20
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

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DISCIPLINE: BRIDGE

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PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

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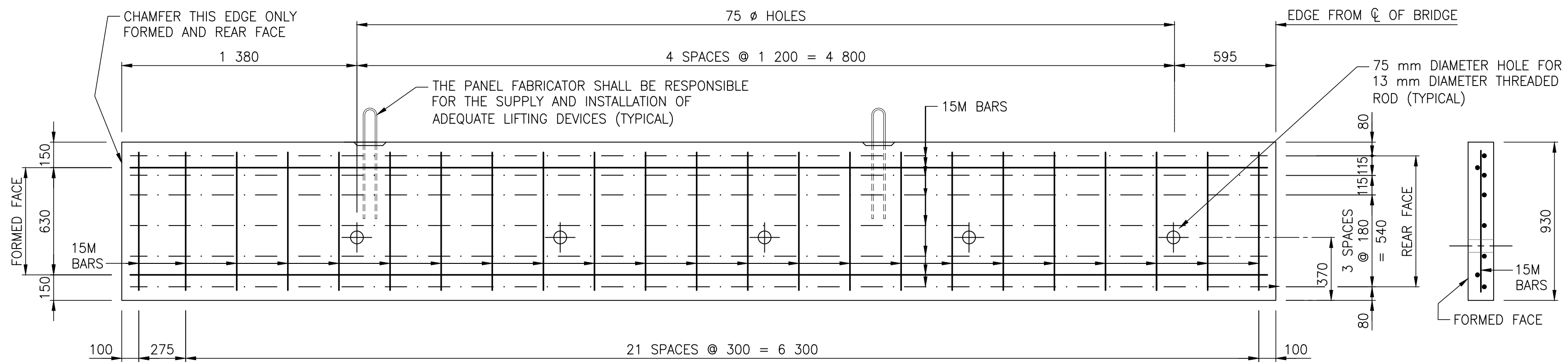
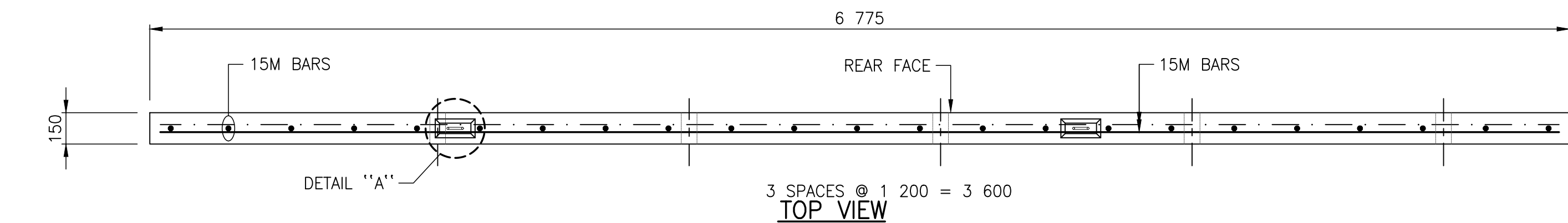
TITLE:

PILE BENT CAP AND BEARING DETAILS

PROJECT:

PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

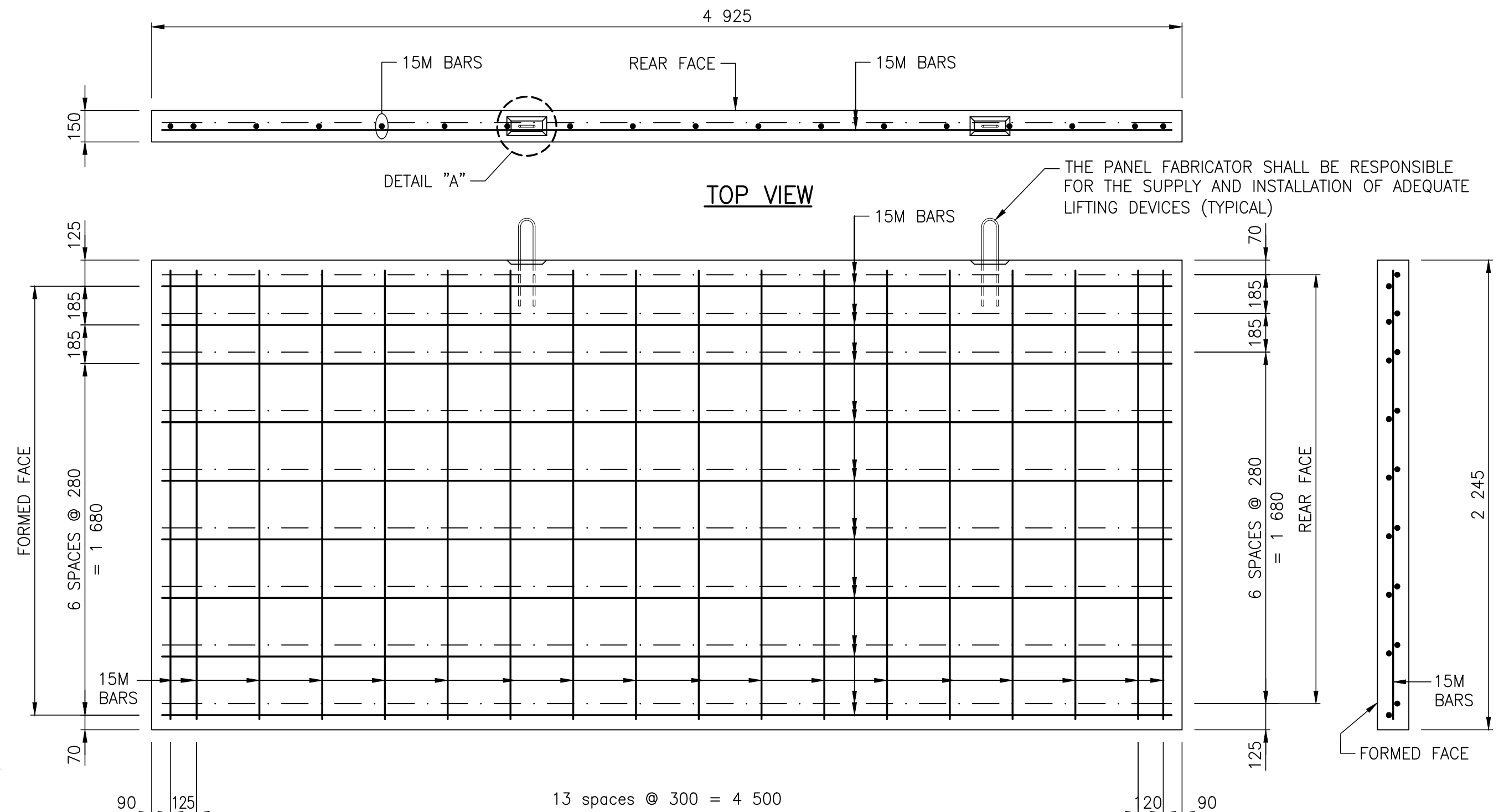
DRAWING NUMBER: 7
REV: 0



PRECAST PANEL Mk. "N1" & "N1a"

PANEL MK. "N1" SHOWN. PANEL MK. "N1a" OPPOSITE HAND
SCALE 1:20

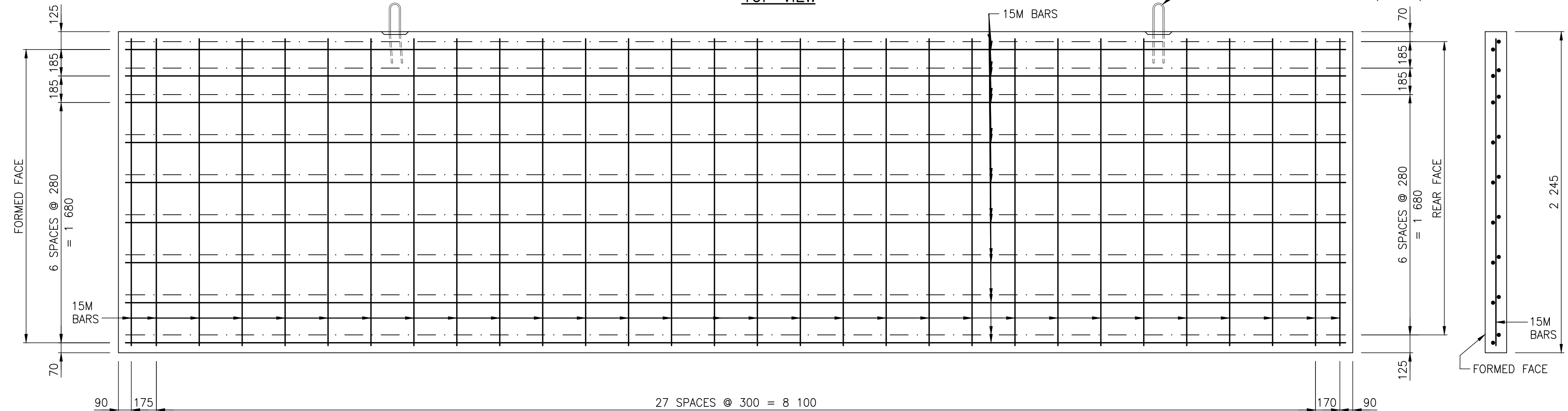
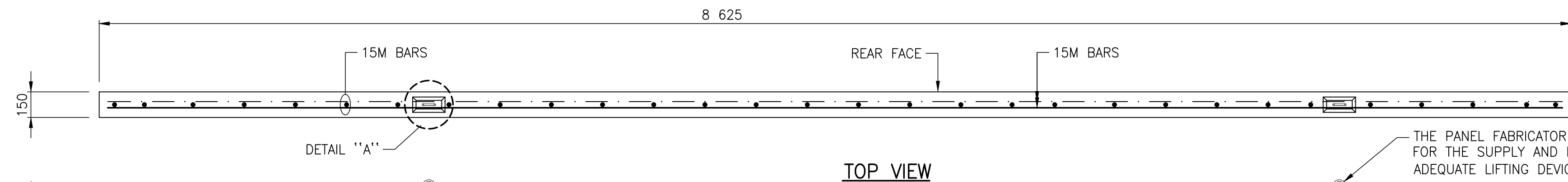
TYPICAL SECTION



PRECAST PANEL Mk. "N3"

SCALE 1:20

TYPICAL SECTION



PRECAST PANEL Mk. "N2"

SCALE 1:20

TYPICAL SECTION

NOTES

1. ALL PANEL EXPOSED EDGES TO BE CHAMFERED 20 mm EXCEPT NO CHAMFER ON PANELS MK. "N1" AND "N1a, OR IF SHOWN.
2. MARK REINFORCING STEEL LOCATION ON EDGES OF THE BACK FACE OF PANELS AFTER CASTING.
3. CONCRETE COVER SHALL BE 50 mm UNLESS NOTED OTHERWISE.
4. FORMED FACE TO BE PLACED AS EXPOSED FACE DURING CONSTRUCTION.
5. AFTER PRECAST PANEL INSTALLATION, ALL LIFTING DEVICES TO BE CUT-OFF FLUSH AND GROUTED AS DIRECTED BY ENGINEER. BACK FACES OF THE UPPER AND LOWER BALLAST WALLS SHALL BE ALIGNED IN THE SAME VERTICAL PLANE.
6. FOR DETAIL "A", SEE SHEET 9.

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
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DRAWN BY (OPTIONAL): KD

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25mm

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PROJECT NUMBER 221-07930-00

CLIENT: **The City of Morden**

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
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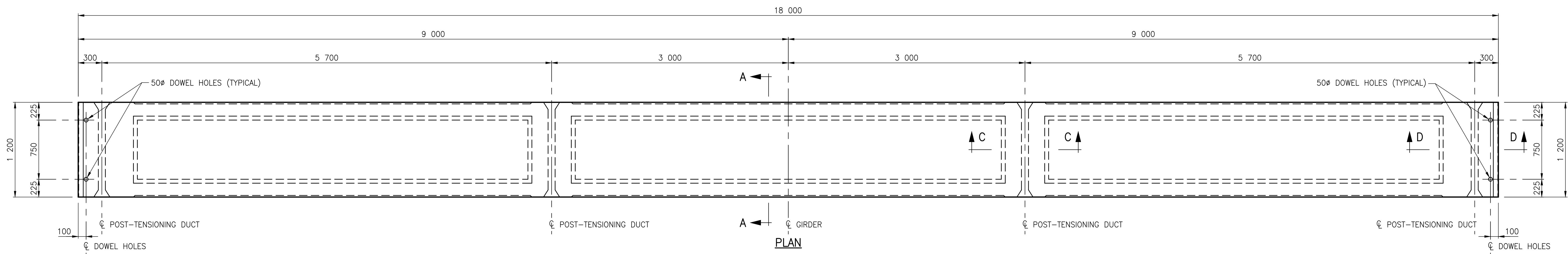
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SHEET 1 OF 2

PROJECT: **PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK**

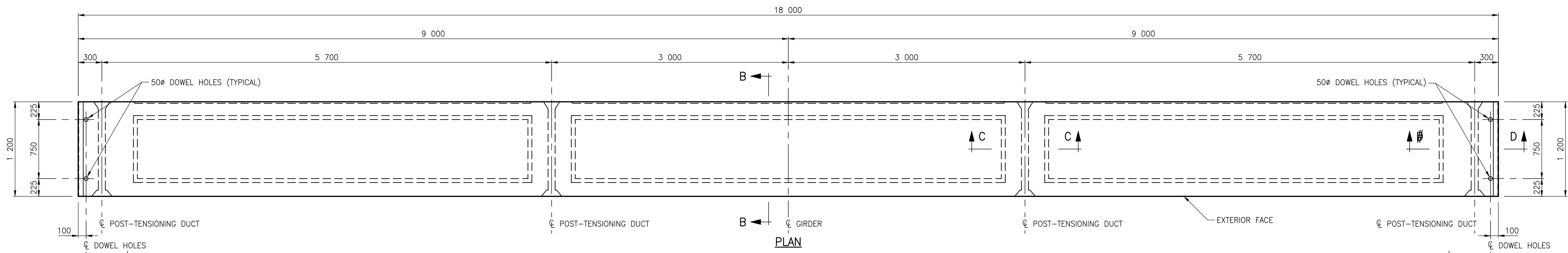
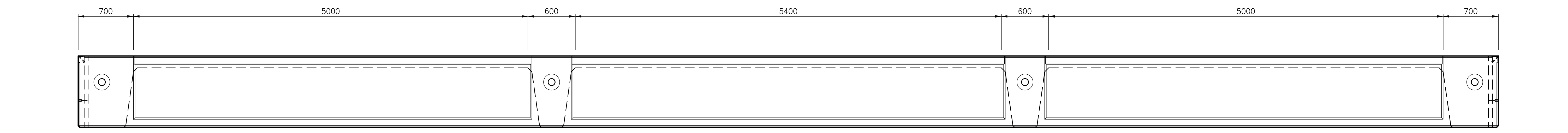
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REV: **0**

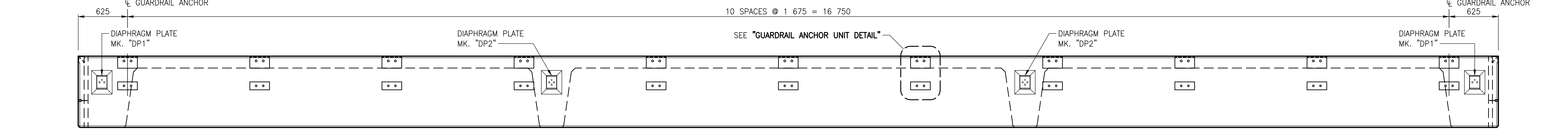
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 PRECAST PANEL DETAILS.dwg
 2023-01-30



ELEVATION
INTERIOR GIRDER MKS. "G1" AND "G3"
 SCALE 1:25



ELEVATION
EXTERIOR GIRDER MKS. "G2" AND "G4"
 SCALE 1:25



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WSP Canada Inc.
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DATE: 2023-01-30

APPROVED BY: MB

CHECKED BY: EH

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DISCIPLINE: BRIDGE

ORIGINAL SCALE: AS NOTED

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PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE:

**PRECAST PRESTRESSED
CHANNEL GIRDERS
CONCRETE DETAILS
(SHEET 1 OF 2)**

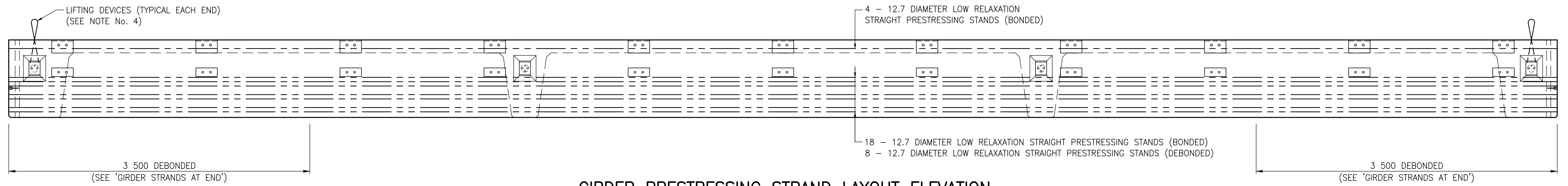
PROJECT:

**PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK**

DRAWING NUMBER: 10

REV: 0

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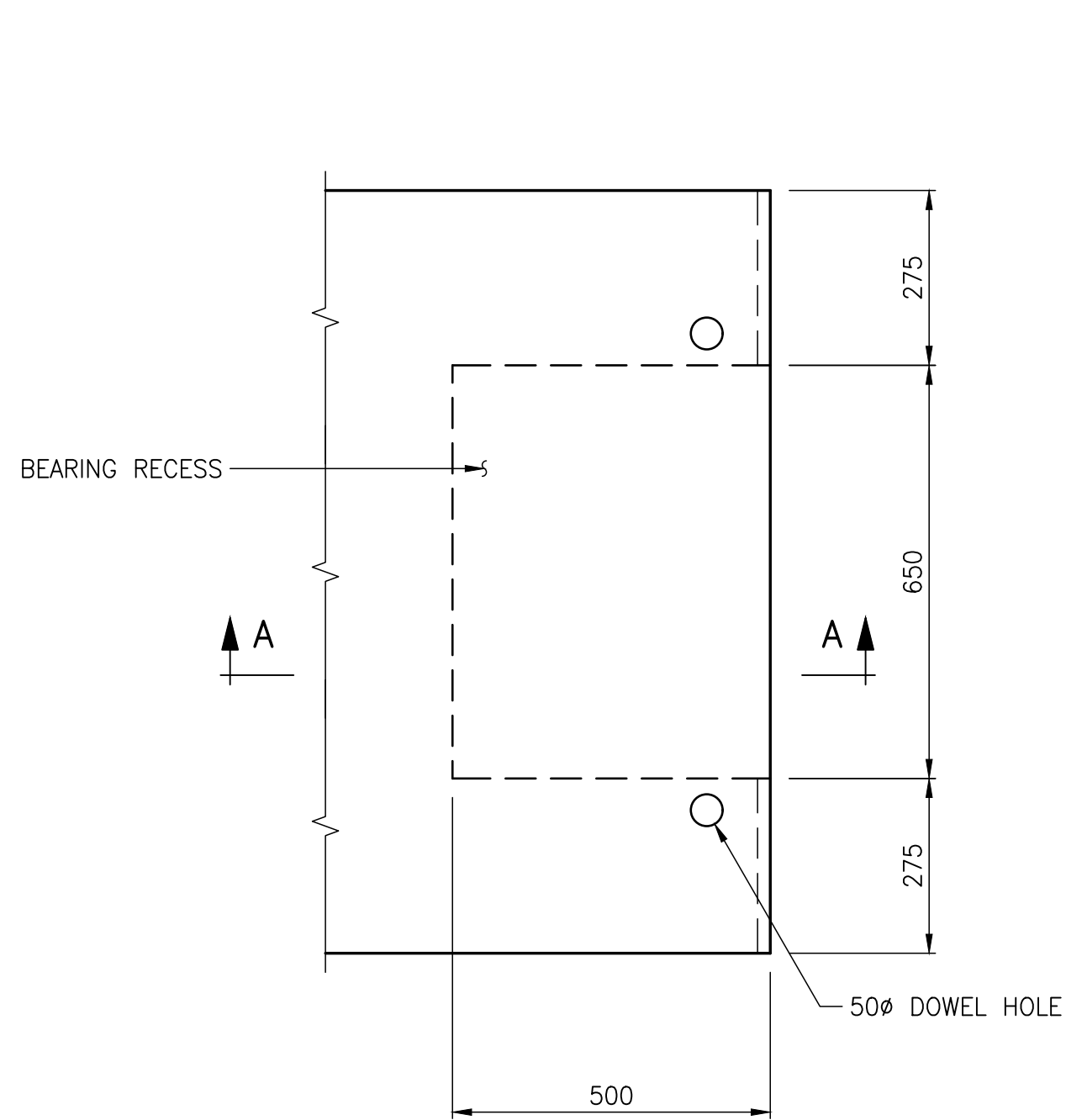


GIRDER PRESTRESSING STRAND LAYOUT ELEVATION

(GIRDER MKS. "G2" & "G4" SHOWN, GIRDER MKS. "G1" & "G3" SIMILAR)
SCALE 1:25

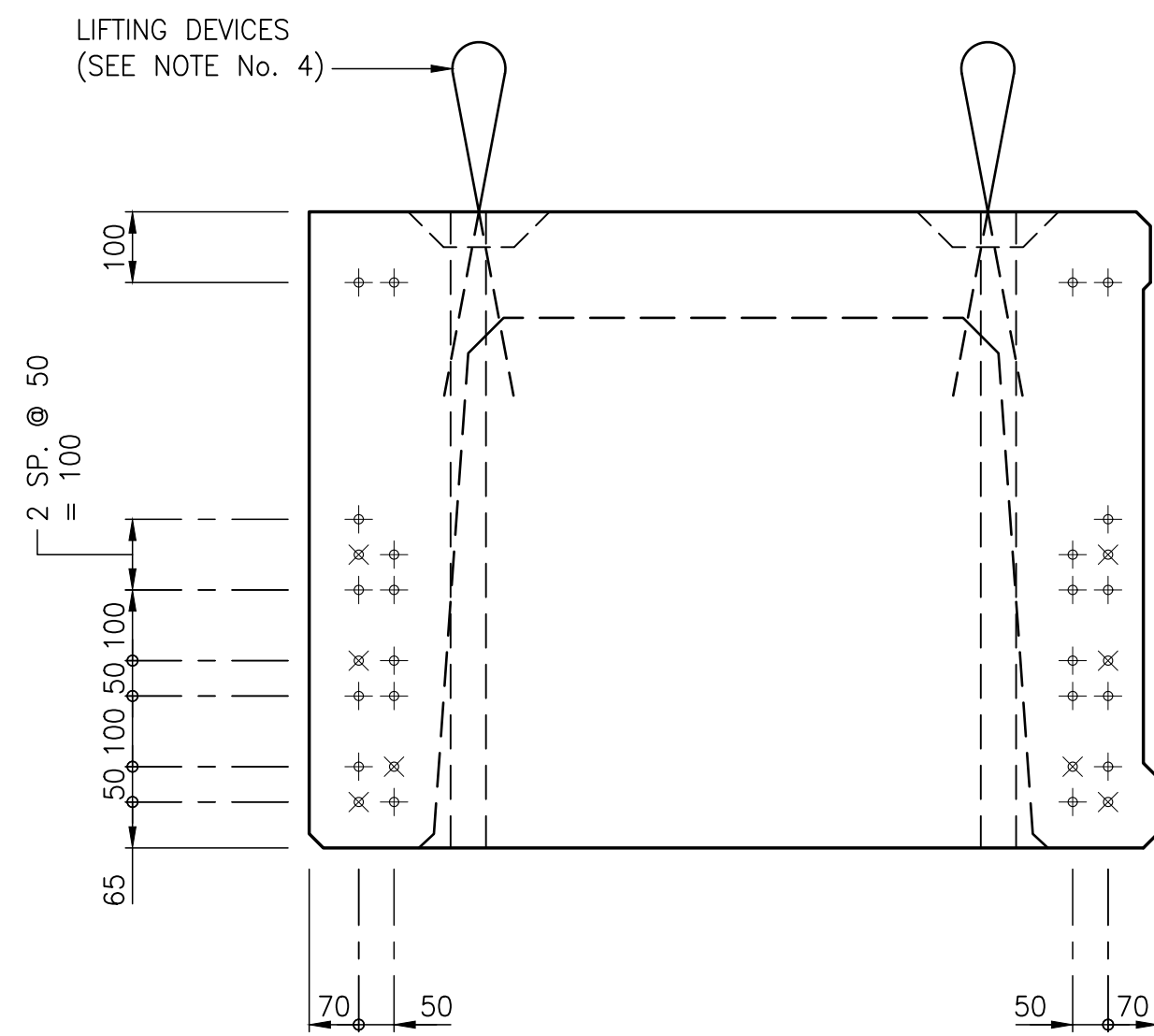
NOTE:

1. CONCRETE STRENGTH: AT TRANSFER, $f'_{ci} = 35 \text{ MPa}$
AT 28 DAYS, $f'_{c} = 50 \text{ MPa}$
2. PRESTRESSING STEEL: 12.7 mm DIAMETER LOW RELAXATION STRANDS MINIMUM ULTIMATE STRENGTH, $f_{pu} = 1 860 \text{ MPa}$
JACKING FORCE/STRAND AFTER ANCHORAGE SEATING LOSS, $f_{pj} = 143 \text{ kN/STRAND}$
3. REINFORCING STEEL: CAN/CSA G30.18-19 GRADE 400W, HOT DIP GALVANIZED
4. THE GIRDER FABRICATOR SHALL BE RESPONSIBLE FOR THE DESIGN, SUPPLY AND INSTALLATION OF ADEQUATE LIFTING DEVICES C/W 50 DEEP POCKETS (CUT OFF FLUSH WITH BOTTOM OF RECESS AND GROUT AFTER GIRDER INSTALLATION).



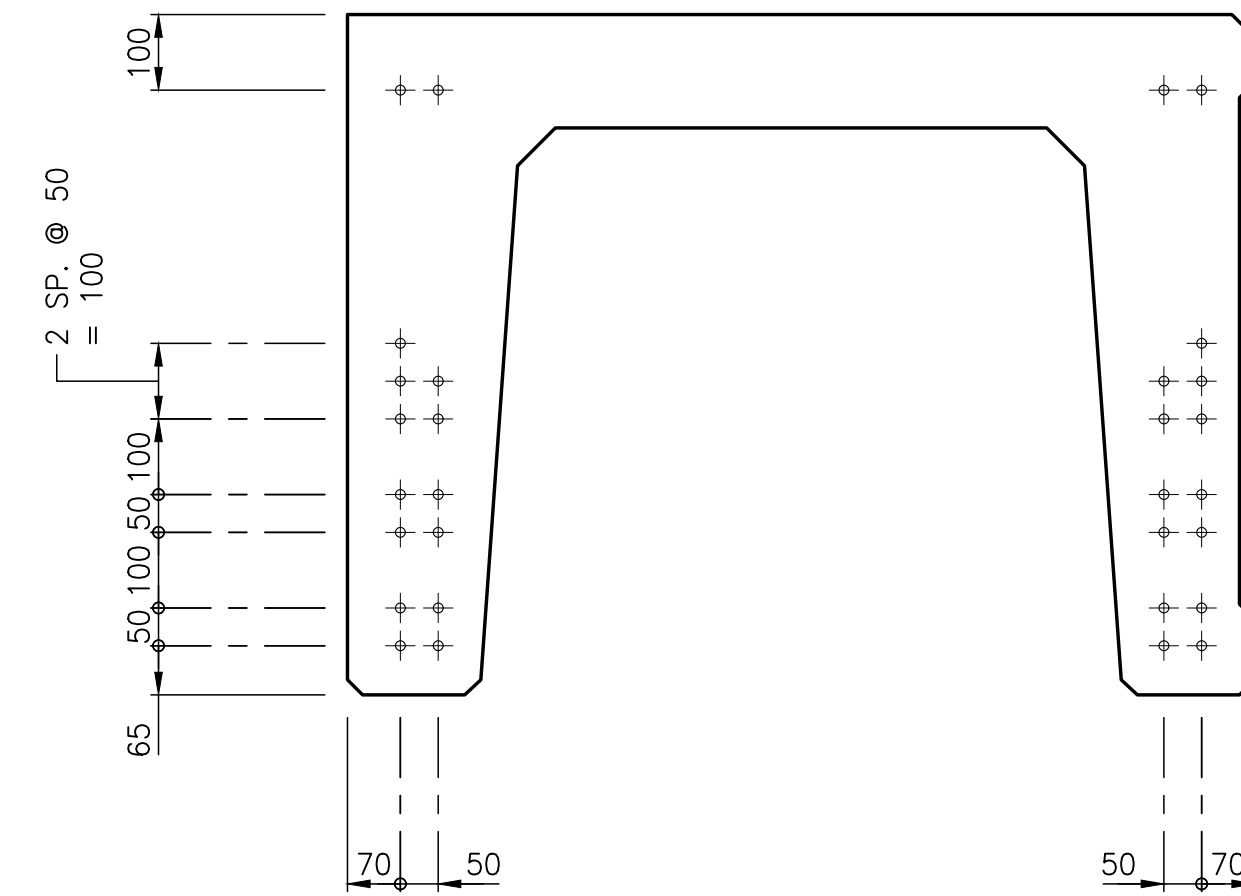
GIRDER BEARING RECESS PLAN

(GIRDER MKS. "G2" & "G4" SHOWN, GIRDER MKS. "G1" & "G3" SIMILAR)
SCALE 1:10



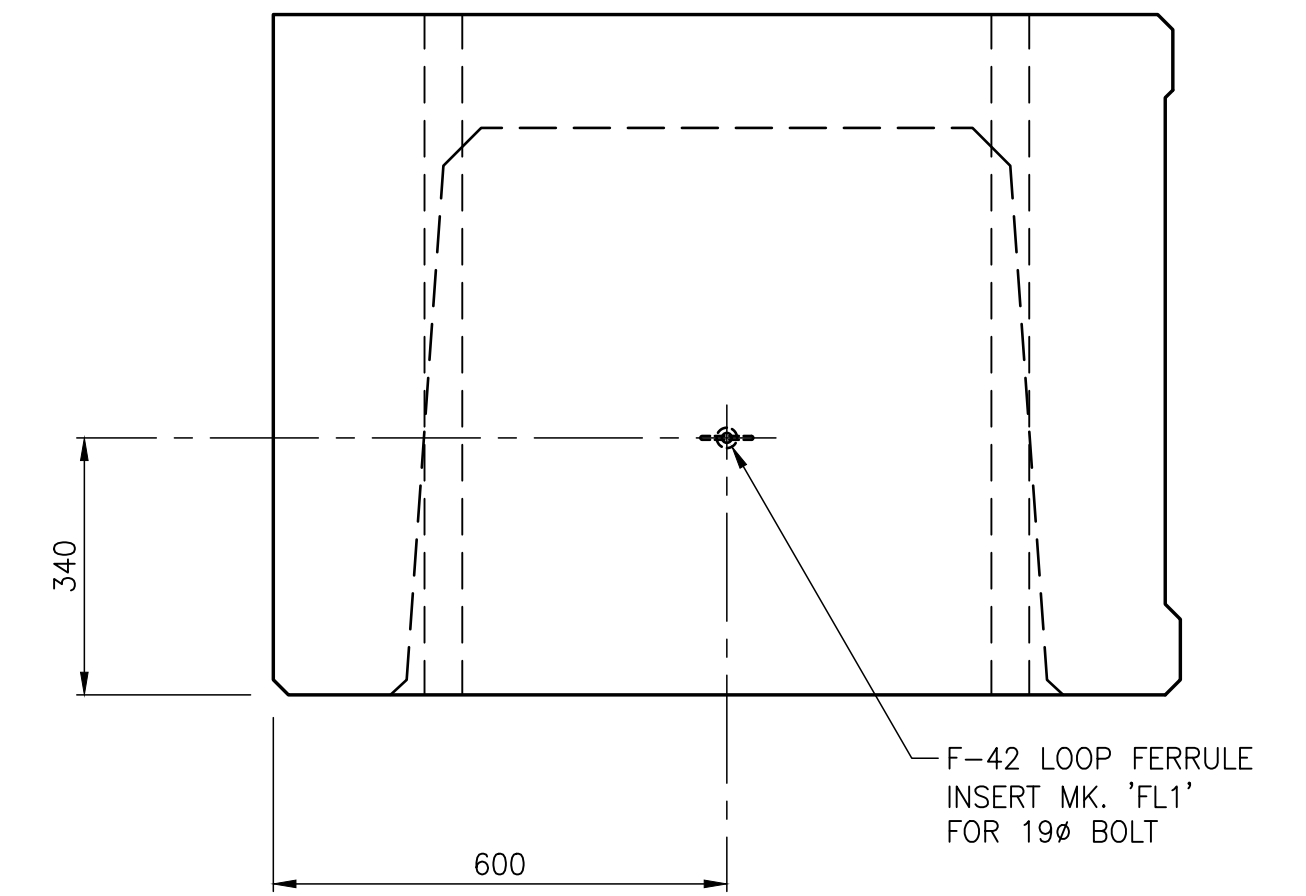
GIRDER STRANDS AT ENDS

(GIRDER MKS. "G2" & "G4" SHOWN, GIRDER MKS. "G1" & "G3" SIMILAR)
SCALE 1:10



GIRDER STRANDS AT CENTER

(GIRDER MKS. "G2" & "G4" SHOWN, GIRDER MKS. "G1" & "G3" SIMILAR)
SCALE 1:10

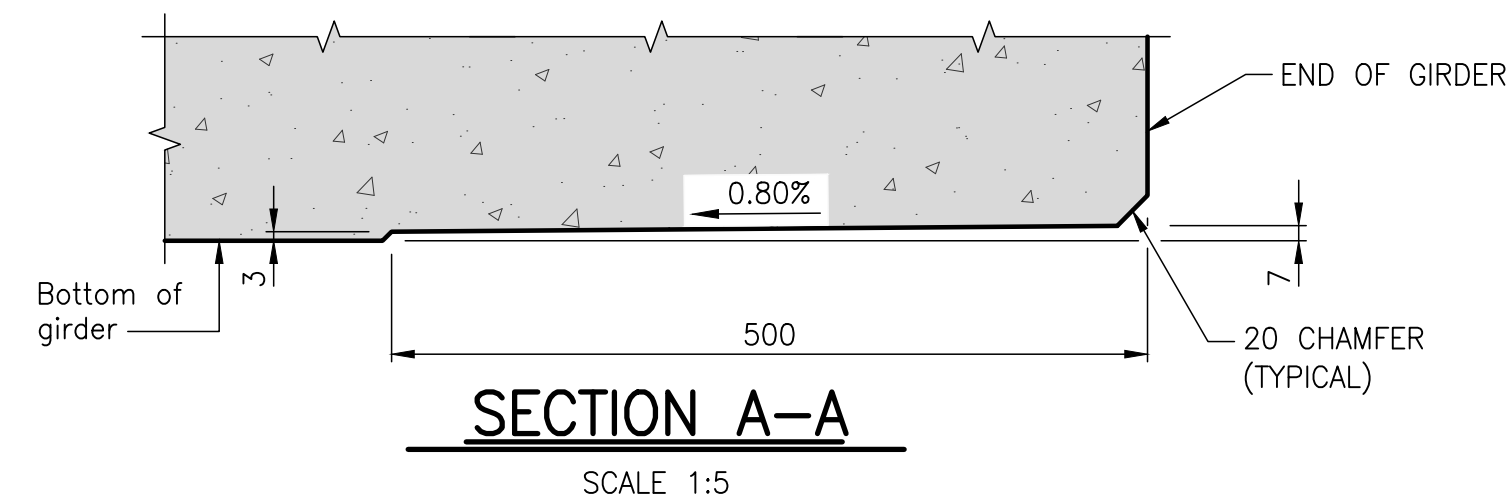


GIRDER END ELEVATION

(GIRDER MKS. "G2" & "G4" SHOWN, GIRDER MKS. "G1" & "G3" SIMILAR)
SCALE 1:10

STRAND LEGEND:

- + BONDED STRAND
- x DEBONDED STRAND



SECTION A-A

SCALE 1:5

NOT FOR CONSTRUCTION

REVISION:	REVISION:
0	2023-01-30
ISSUED FOR TENDER	MB
DATE	DESCRIPTION
BY	DATE
DESCRIPTION	BY

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ORIGINAL SCALE: AS NOTED

APPROVED BY: MB

CHECKED BY: MB

DRAWN BY (OPTIONAL): CP

DATE: 2023-01-30

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25mm

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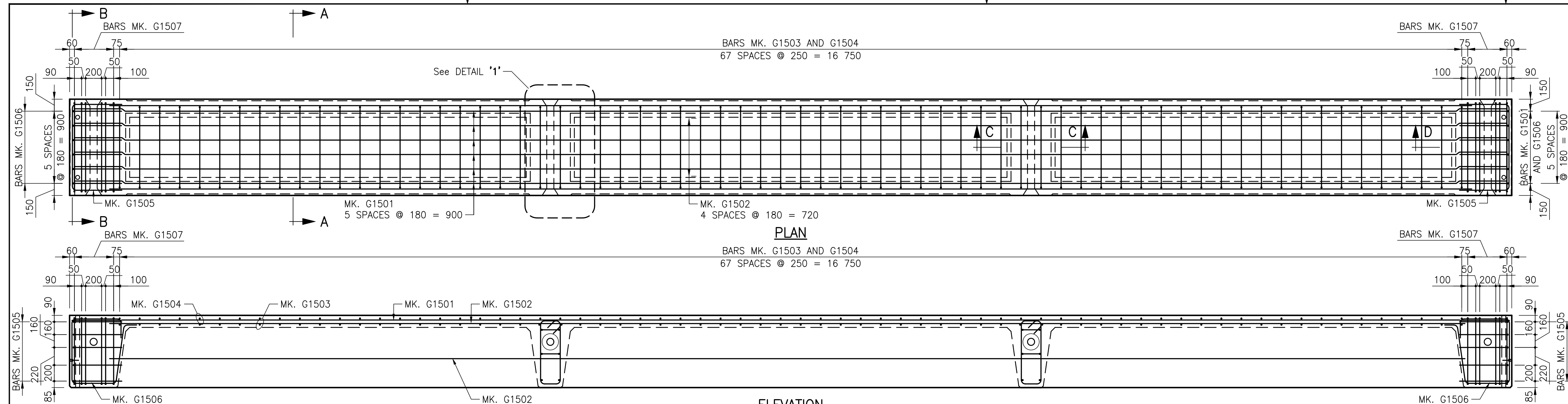
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PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 12

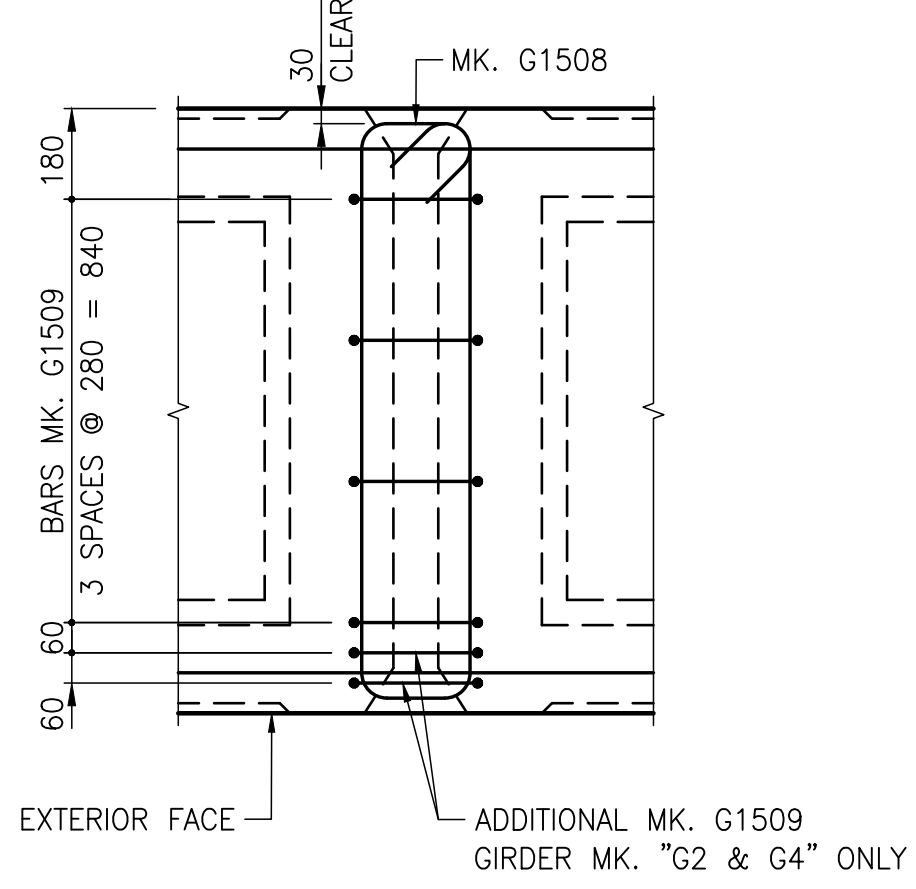
REV: 0

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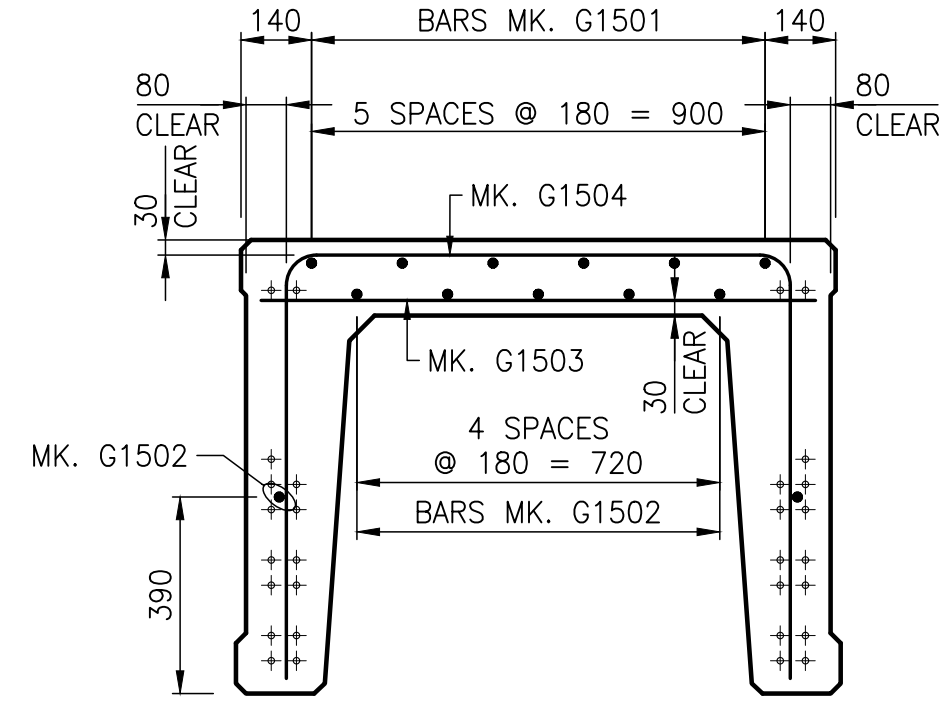


GIRDER MK. "G1" AND "G2"

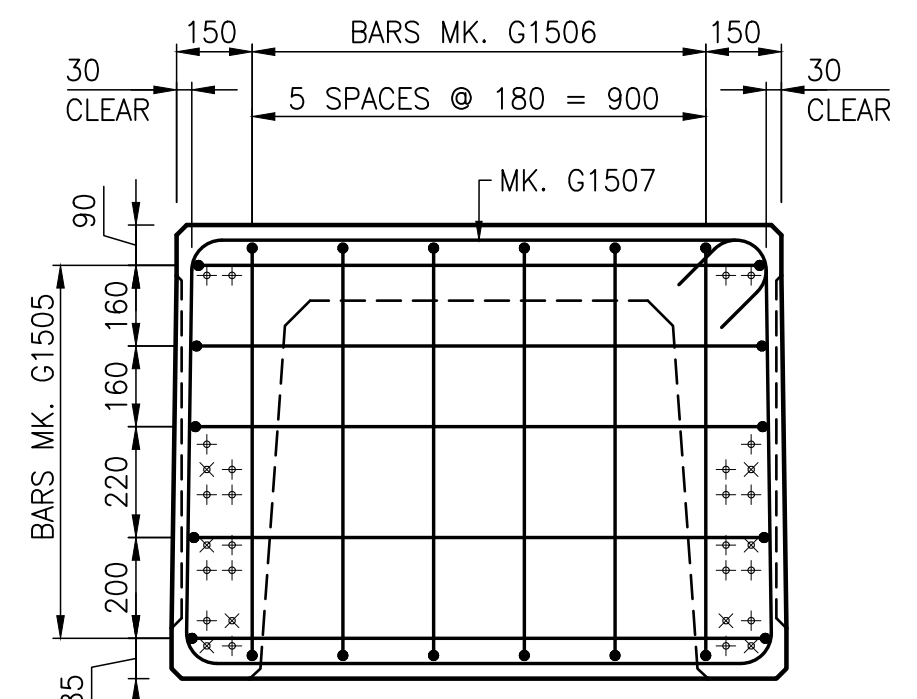
SCALE 1:30
MK. "G1" SHOWN
MK. "G2" SIMILAR



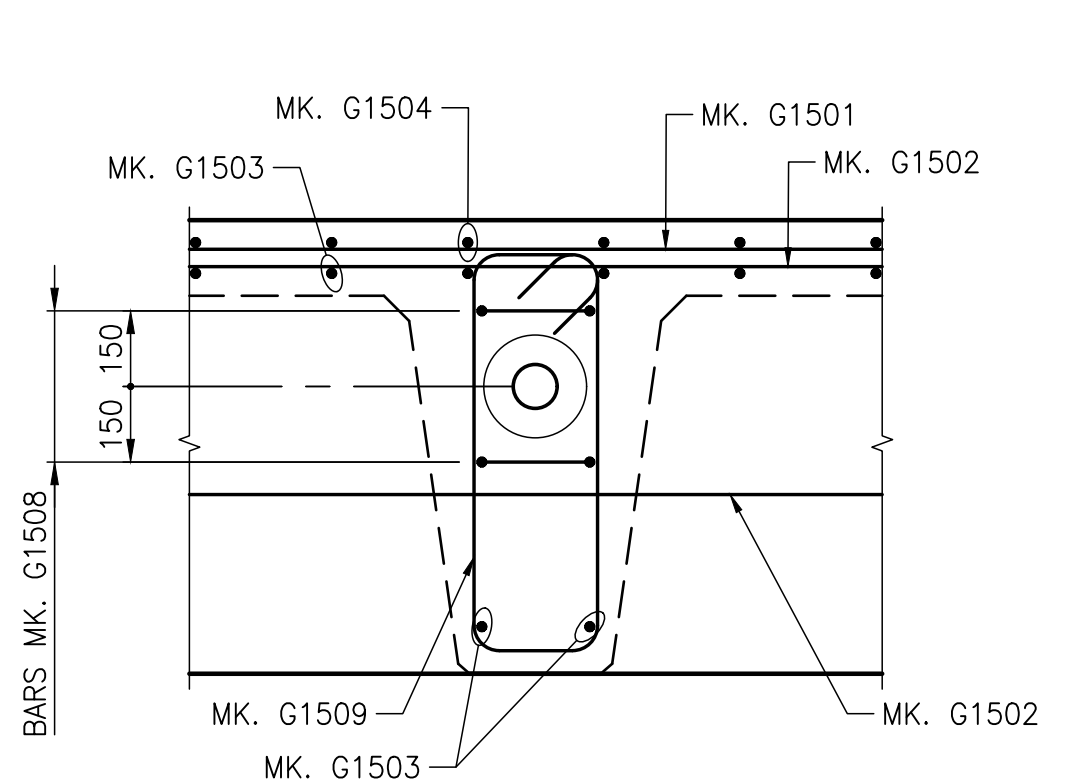
DETAIL 1
SCALE 1:15



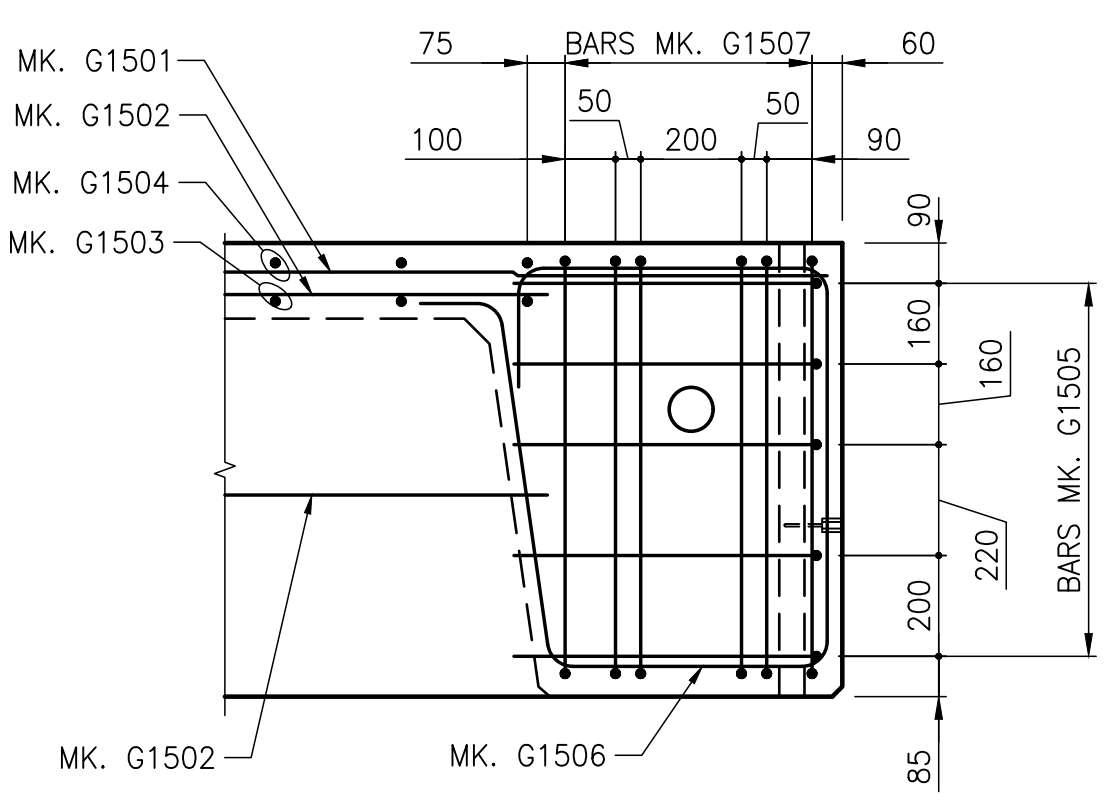
SECTION A-A
SCALE 1:15



SECTION B-B
SCALE 1:15



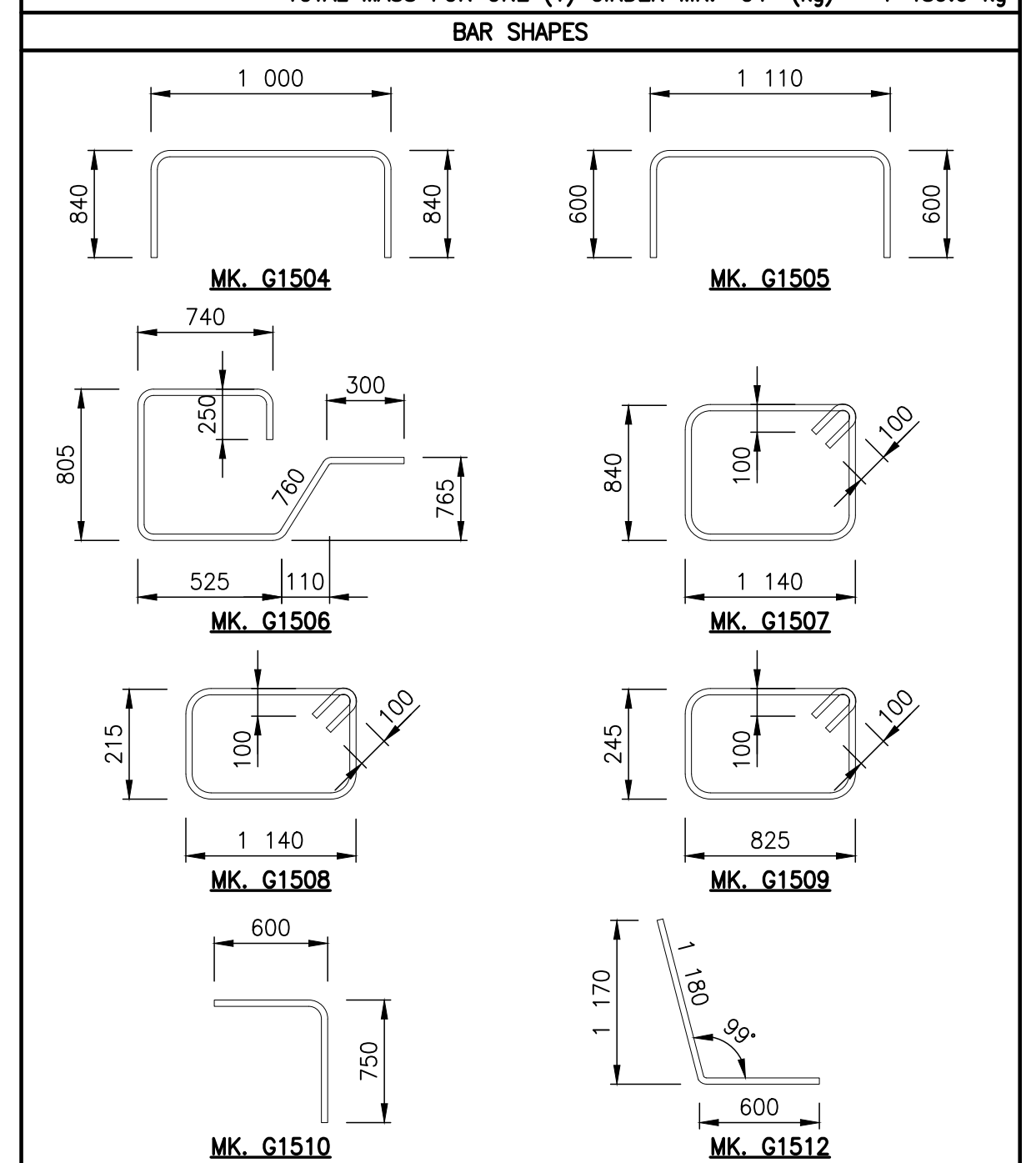
SECTION C-C
Scale 1:15



SECTION D-D
Scale 1:15

BILL OF CHROMX REINFORCING STEEL FOR TEN 18.0 m LONG GIRDERS

GIRDER MK. "G1"				GIRDER MK. "G2"				GIRDER MK. "G3"				GIRDER MK. "G4"															
STRAIGHT BARS				BENT BARS				STRAIGHT BARS				BENT BARS				STRAIGHT BARS				BENT BARS							
MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)	MARK	QTY.	LENGTH (mm)	MASS (kg)
G1501	6	17 900	168.6	G1501	6	17 900	168.6	G1501	6	17 900	168.6	G1501	6	17 900	168.6	G1501	6	17 900	168.6	G1504	68	2 680	286.1	G1504	68	2 680	286.1
G1502	7	16 800	184.6	G1502	7	16 800	184.6	G1502	7	16 800	184.6	G1502	7	16 800	184.6	G1502	7	16 800	184.6	G1505	10	2 310	36.3	G1505	10	2 310	36.3
G1503	76	1 100	124.3	G1503	76	1 100	124.3	G1503	76	1 100	124.3	G1503	76	1 100	124.3	G1503	76	1 100	124.3	G1506	12	3 380	63.7	G1506	12	3 380	63.7
																				G1507	12	4 160	78.4	G1507	12	4 160	78.4
																				G1508	4	2 910	18.3	G1508	4	2 910	18.3
																				G1509	8	2 340	29.4	G1509	8	2 340	29.4
TOTAL MASS FOR ONE (1) GIRDER MK. "G1" (kg) = 989.7 kg				TOTAL MASS FOR ONE (1) GIRDER MK. "G2" (kg) = 1 004.4 kg				TOTAL MASS FOR ONE (1) GIRDER MK. "G3" (kg) = 1 116.9 kg				TOTAL MASS FOR ONE (1) GIRDER MK. "G4" (kg) = 1 489.0 kg															



NOTES:

- ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "C" DIMENSIONS FOR STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1-04, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
- ALL REINFORCING STEEL SHALL BE DEFORMED STEEL CONFORMING TO CAN/CSA G30.18-19 GRADE 400W FOR GIRDERS.
- ALL REINFORCING STEEL FOR GIRDERS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A767M-16 TO A MINIMUM ZINC THICKNESS OF 610 g/m².
- REINFORCING CLEAR COVER TO BE 25mm UNLESS NOTED OTHERWISE.
- LIKE BARS SHALL BE BUNDLED, SECURELY TIED AND IDENTIFIED AS TO MARK AND SITE NO. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
- ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:

NOT FOR CONSTRUCTION

REVISION:	REVISION:
0	2023-01-30
1	2023-01-30
2	2023-01-30
3	2023-01-30
4	2023-01-30
5	2023-01-30
6	2023-01-30
7	2023-01-30
8	2023-01-30
9	2023-01-30
10	2023-01-30
11	2023-01-30
12	2023-01-30
13	2023-01-30
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45	2023-01-30
46	2023-01-30
47	2023-01-30
48	2023-01-30
49	2023-01-30
50	2023-01-30

SEAL:

ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): CP
DATE: 2023-01-30
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm
DISCIPLINE: BRIDGE

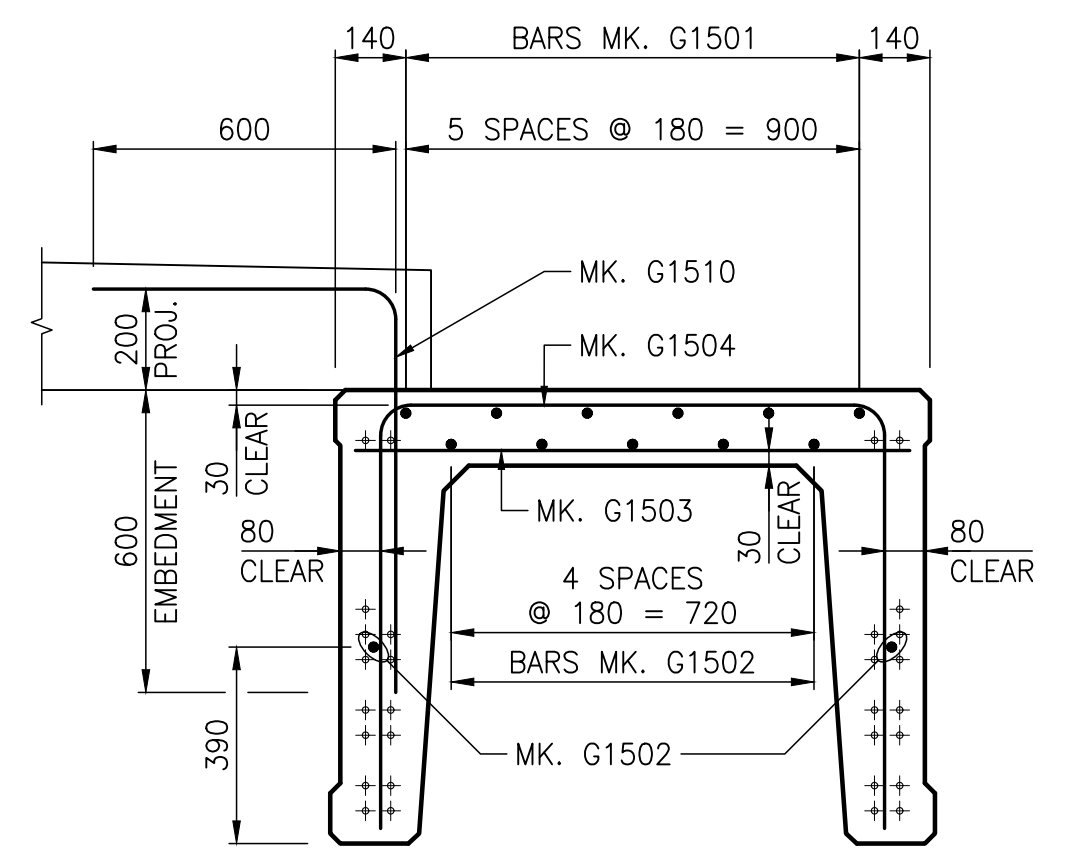
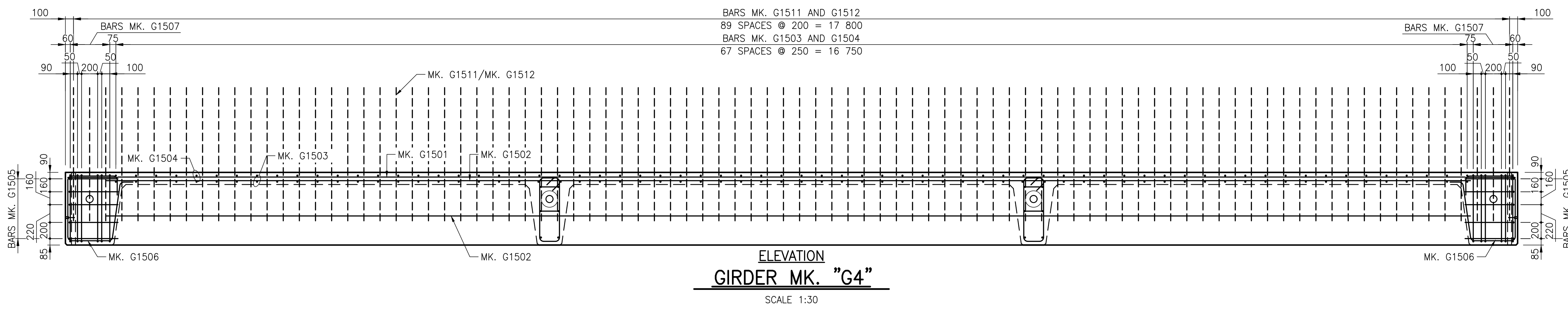
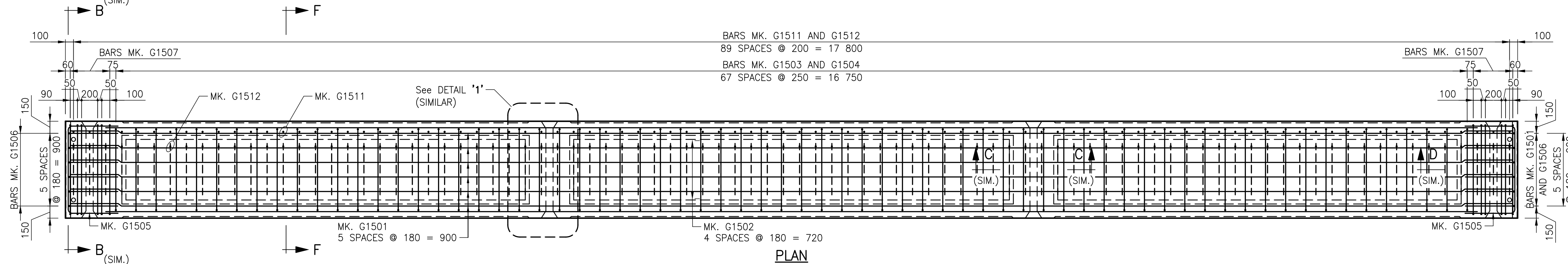
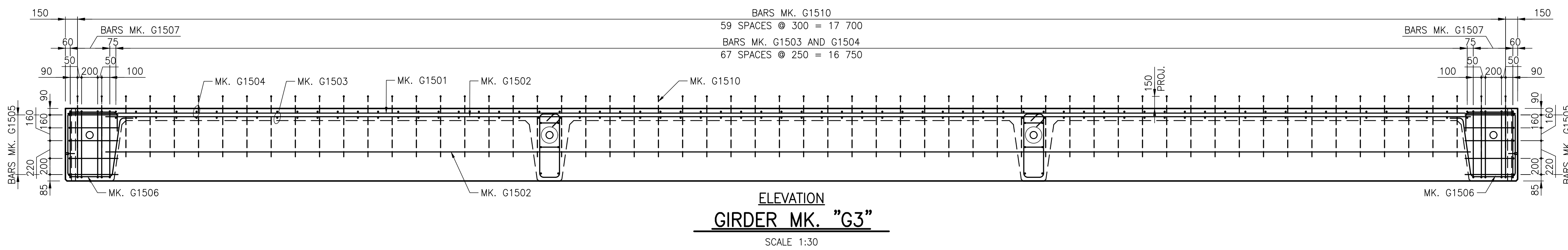
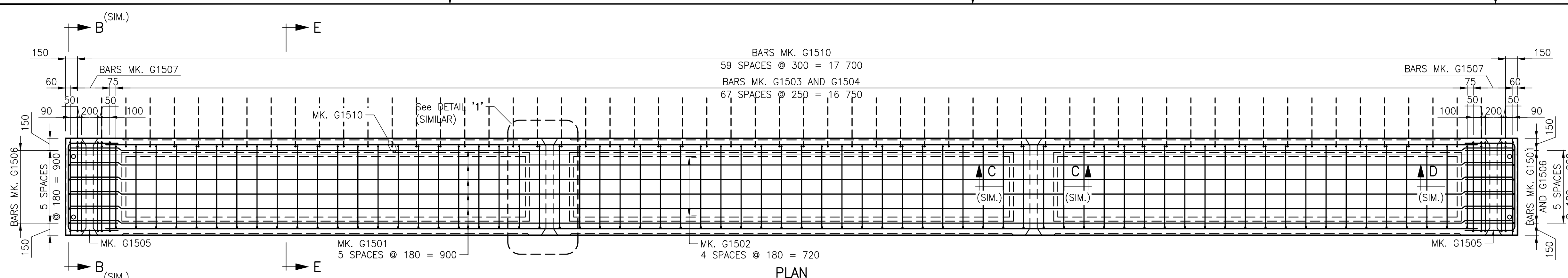
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WSP Canada Inc.
1600 Buffalo Place, Winnipeg, Manitoba R3T 6B8
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City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
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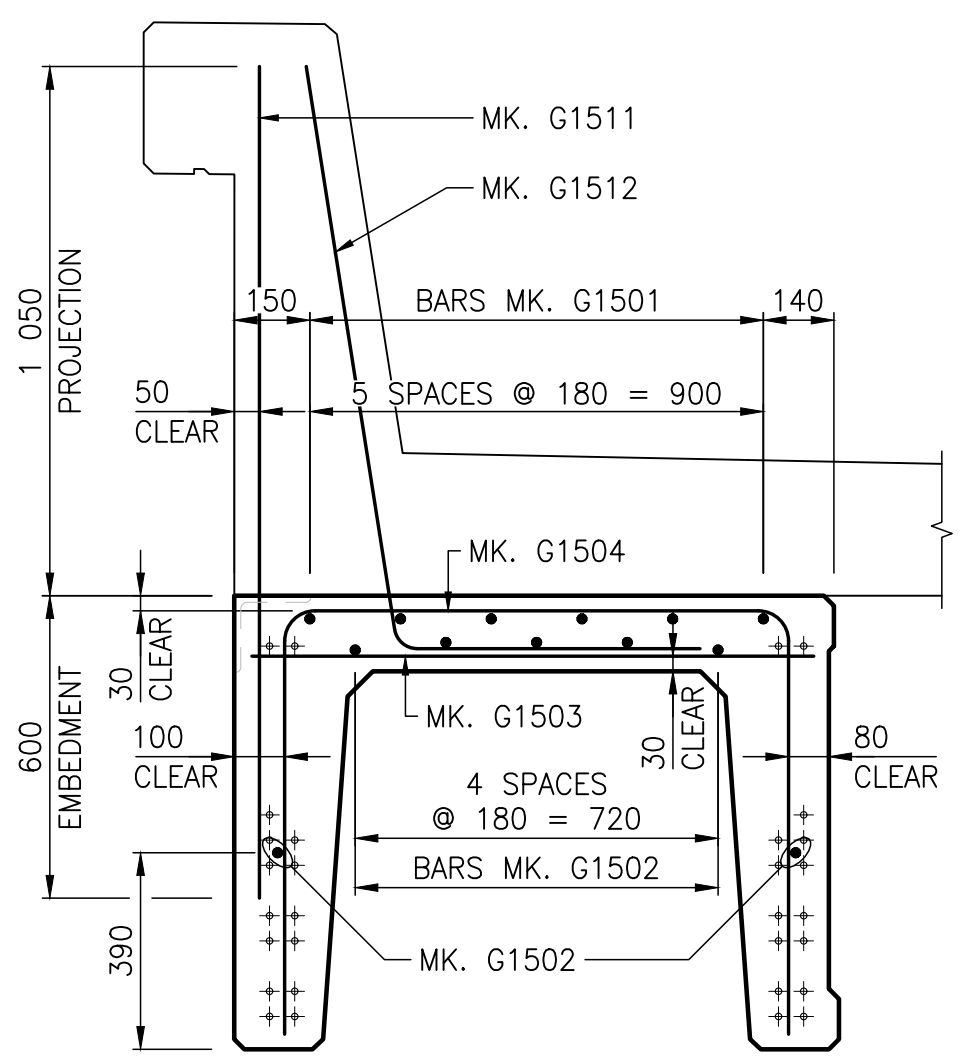
TITLE: **PRECAST PRESTRESSED CHANNEL GIRDERS REINFORCING DETAILS (SHEET 1 OF 2)**

PROJECT: **PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK**
DRAWING NUMBER: 13
REV: 0

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 2023-01-30 10:50:00 AM
 FILE: 2023-01-30 - 10:50:00 AM



SECTION E-E
SCALE 1:15
(SIDEWALK AND BARRIER REINFORCEMENT NOT SHOWN FOR CLARITY)



SECTION F-F
SCALE 1:15
(SIDEWALK AND BARRIER REINFORCEMENT NOT SHOWN FOR CLARITY)

NOT FOR CONSTRUCTION

- NOTES:**
- FOR SECTIONS B-B, C-C AND D-D SEE SHEET 13.
 - FOR DETAIL 1 SEE SHEET 13.
 - FOR BILL OF MATERIALS SEE SHEET 13.

C:\Users\m\OneDrive\Work\Projects\2023\2023-01-30_Parkhill Drive Bridge Replacement - 221-07931-00.dwg
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 PROJECT: 2023-01-30_Parkhill Drive Bridge Replacement - 221-07931-00.dwg
 DRAWING: 2023-01-30_Parkhill Drive Bridge Replacement - 221-07931-00.dwg
 SHEET: 2023-01-30_Parkhill Drive Bridge Replacement - 221-07931-00.dwg

REVISION:	REVISION:
0	2023-01-30
ISSUED FOR TENDER	MB
DATE	DESCRIPTION

SEAL:

**ENGINEERS
GEOLOGISTS
MANITOBA**
Certificate of Authorization
WSP Canada Inc.
No. 5750

ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): CP

DATE: 2023-01-30

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

25mm

DISCIPLINE: BRIDGE

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CLIENT:

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195 Stephen Street, Morden, Manitoba R6M 1V3
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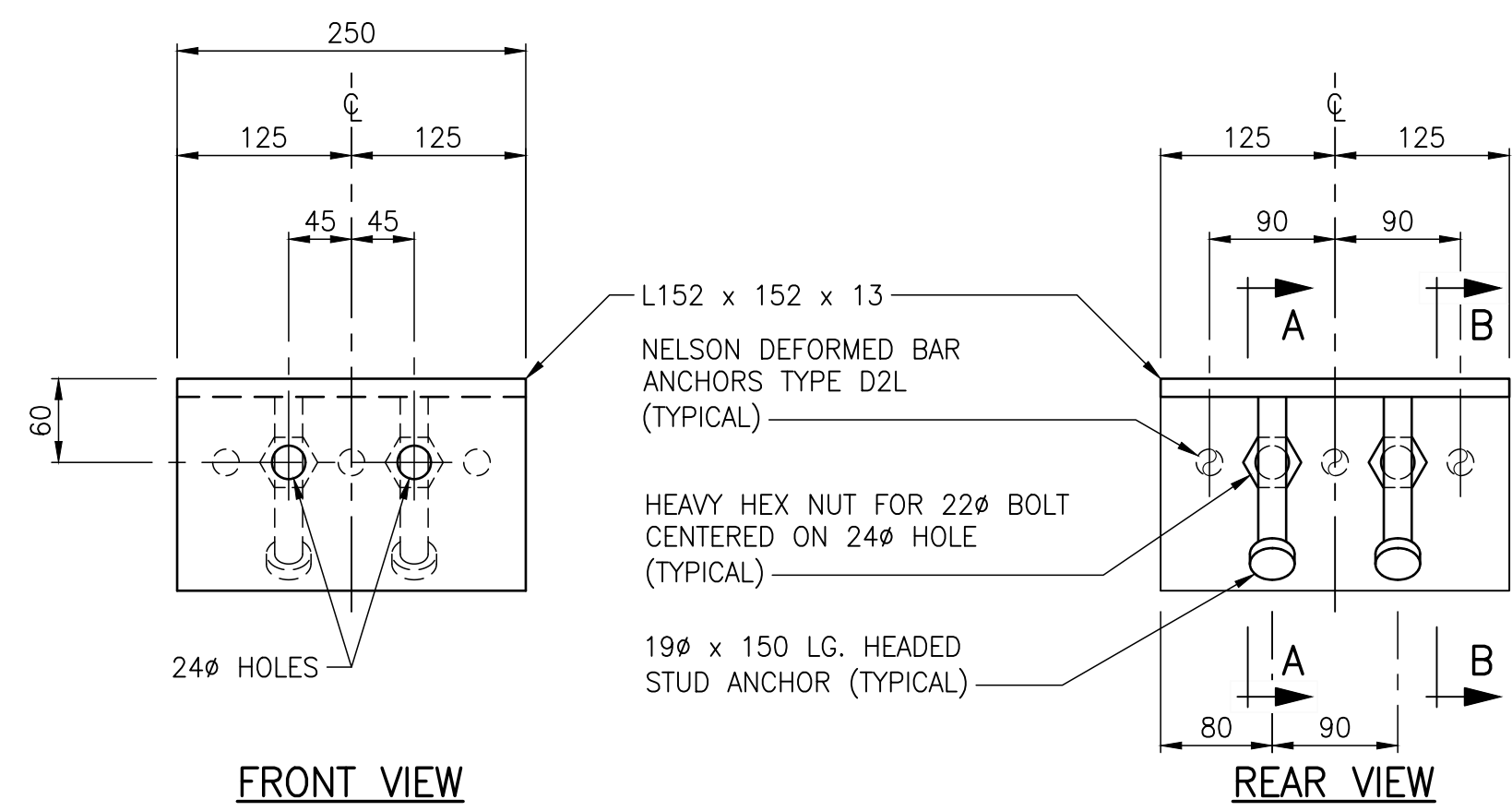
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**PRECAST PRESTRESSED
CHANNEL GIRDERS
REINFORCING DETAILS
(SHEET 2 OF 2)**

PROJECT:

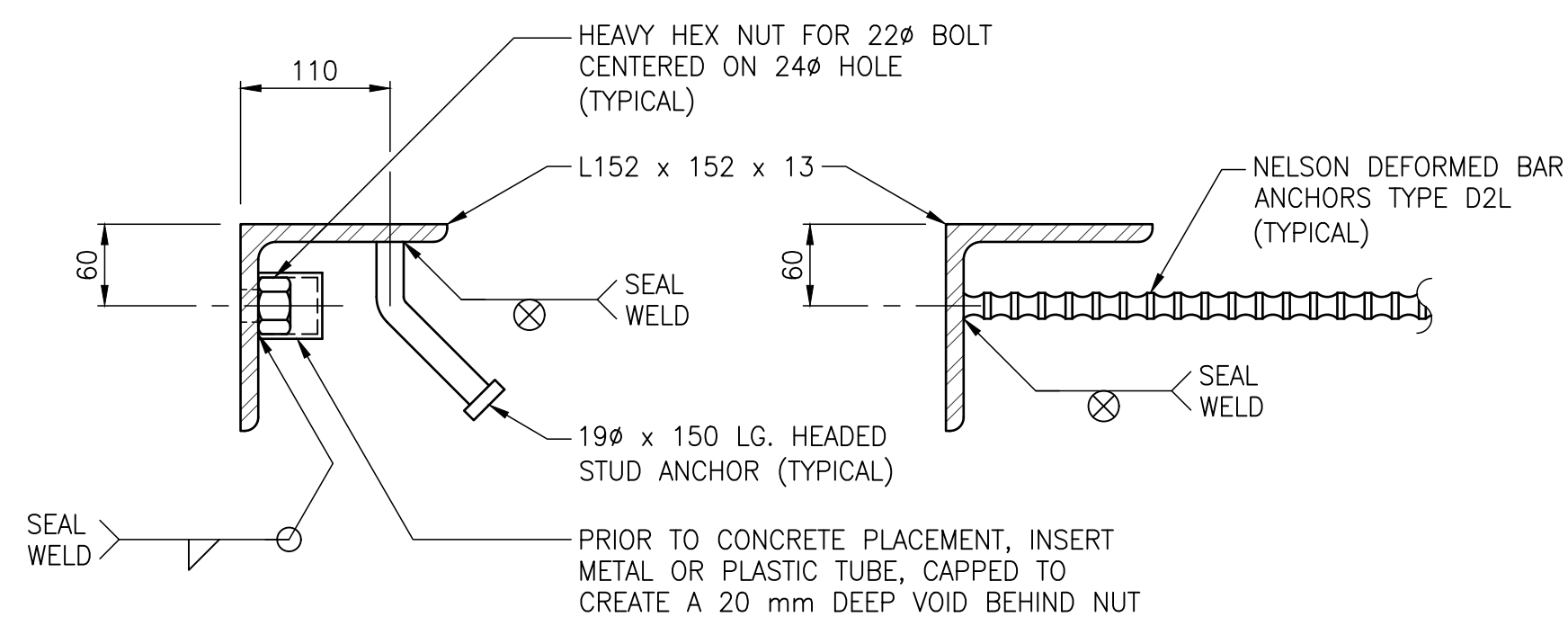
**PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK**

DRAWING NUMBER: 14
REV: 0



FRONT VIEW

REAR VIEW

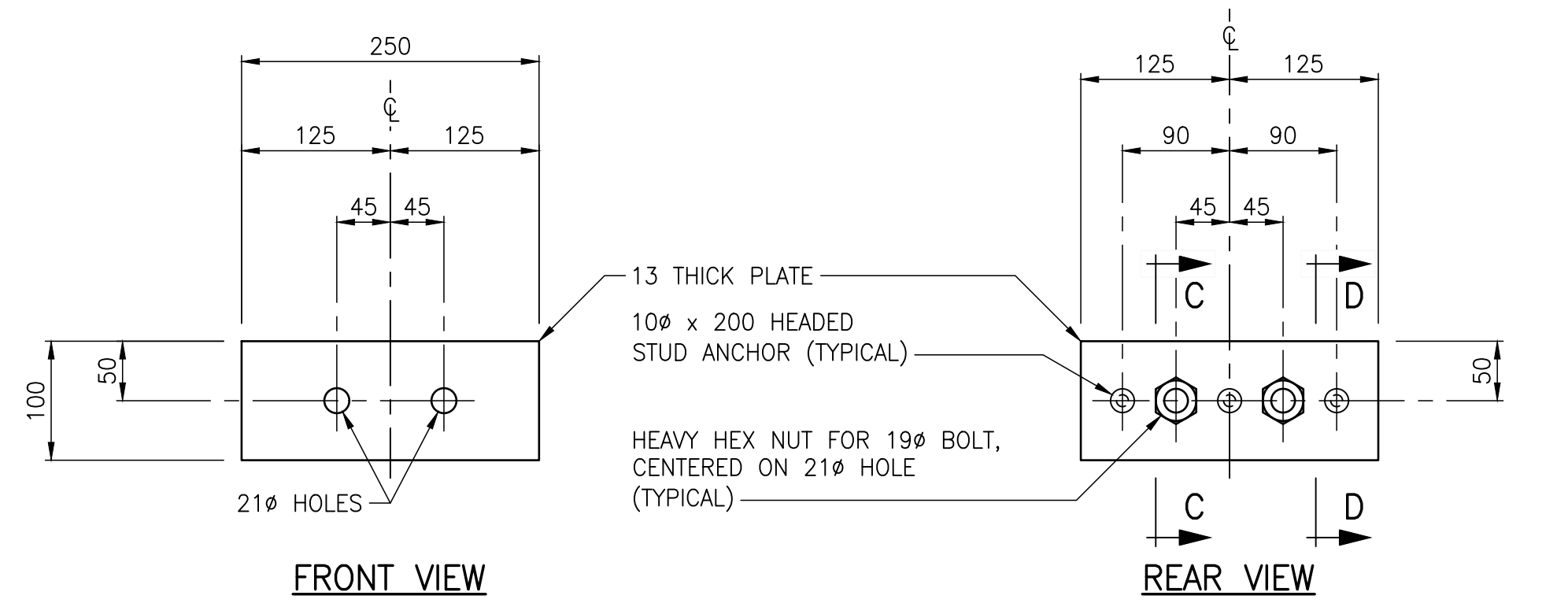


SECTION A-A

SECTION B-B

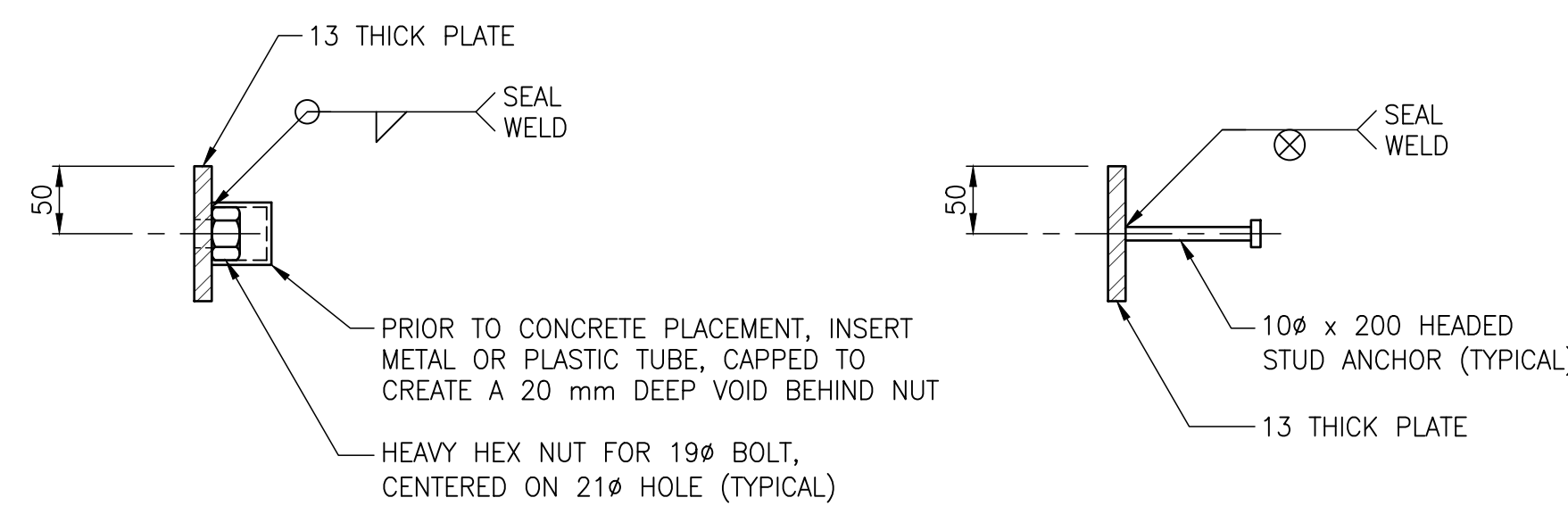
RAILPOST ANCHOR UNIT MK. "U1"

SCALE 1:5



FRONT VIEW

REAR VIEW

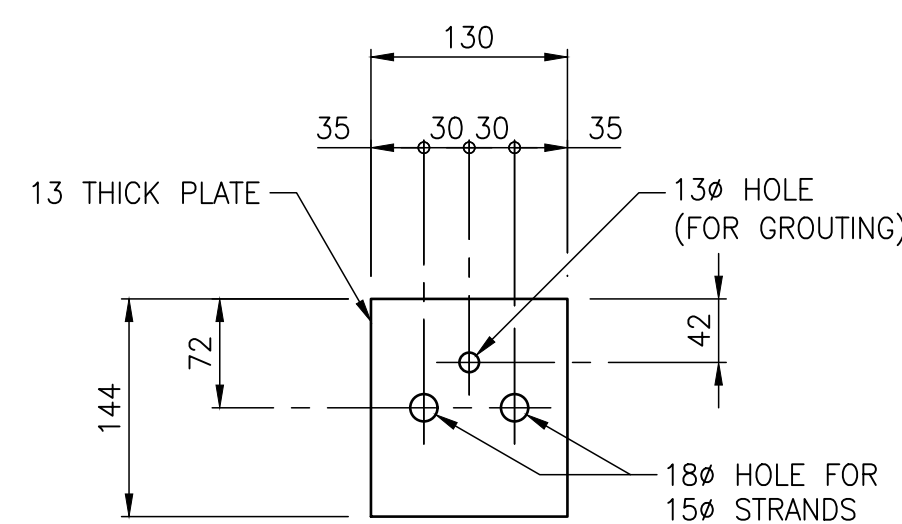


SECTION C-C

SECTION D-D

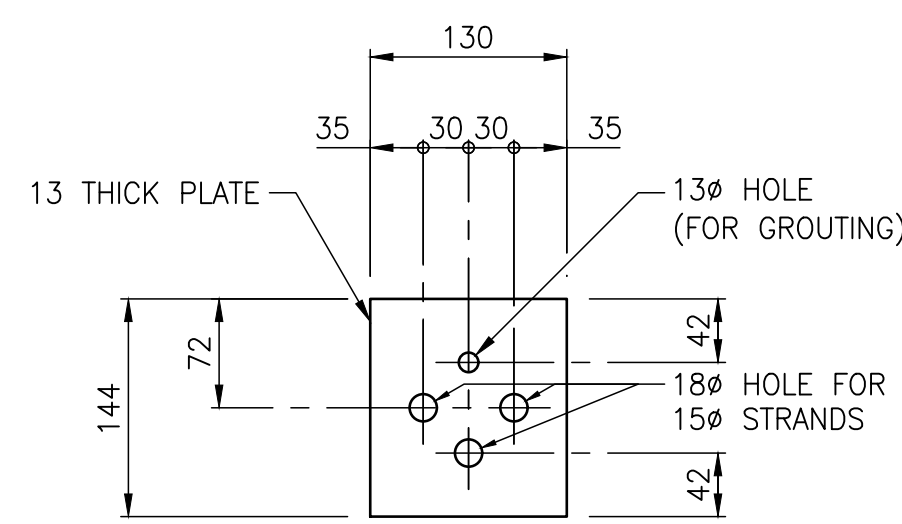
RAILPOST ANCHOR UNIT MK. "U2"

SCALE 1:5



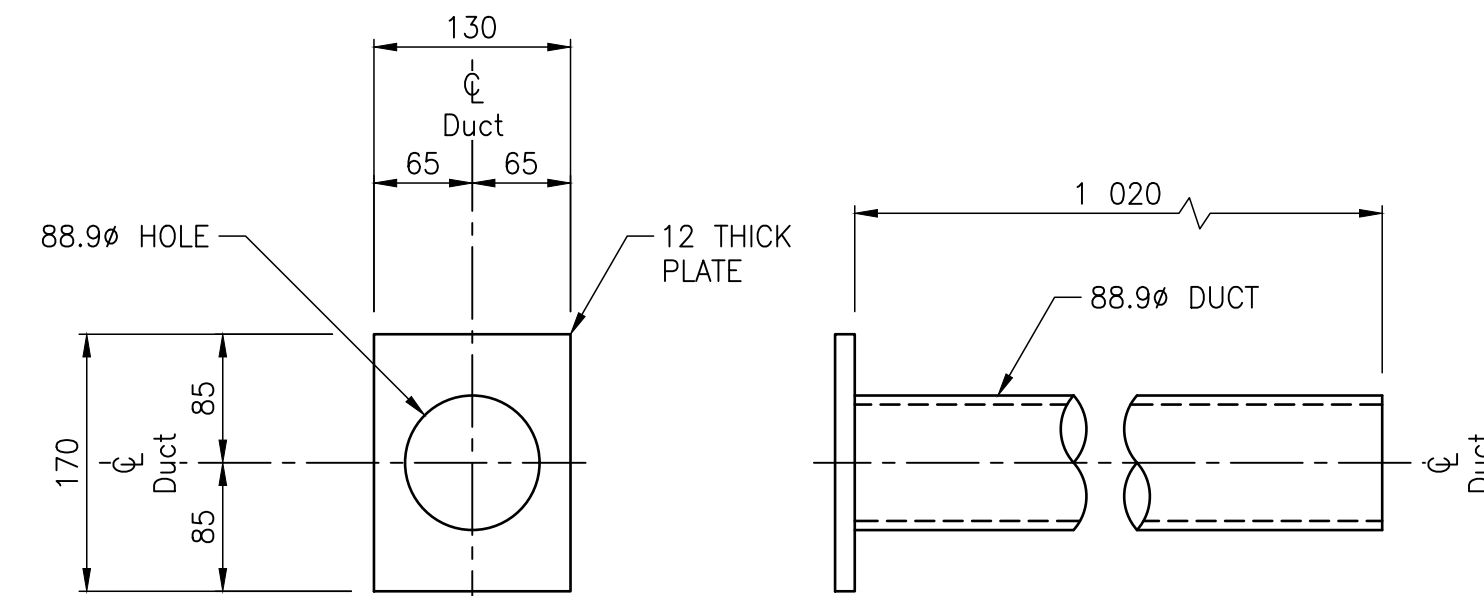
EXTERIOR GIRDER END POST-TENSIONING DUCT MK. "DP1"

SCALE 1:5



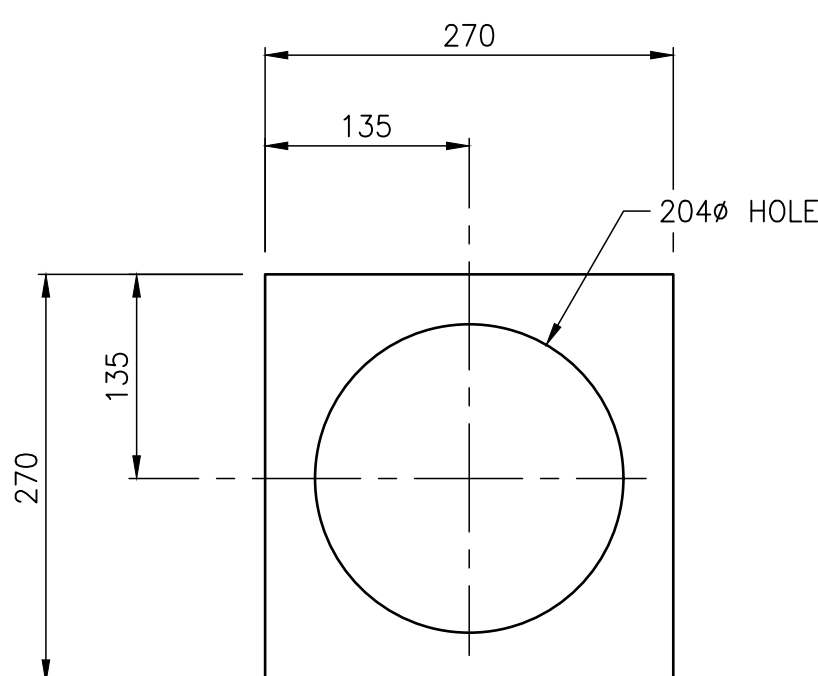
EXTERIOR GIRDER INTERMEDIATE POST-TENSIONING DUCT MK. "DP2"

SCALE 1:5



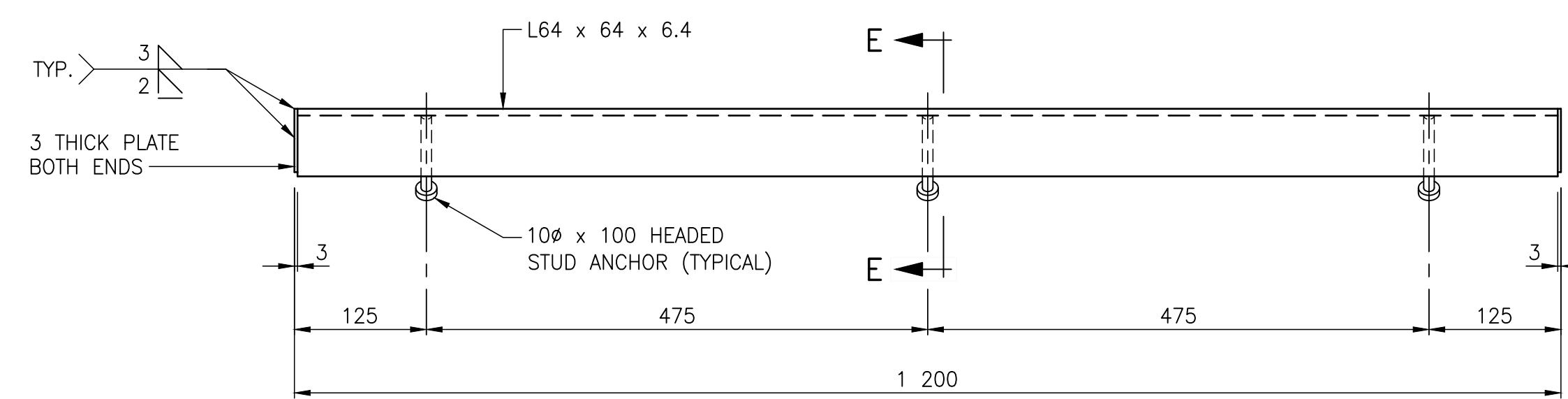
POST-TENSIONING DUCT MK. "PD1"

FOR EXTERIOR GIRDERS ONLY
SCALE 1:5



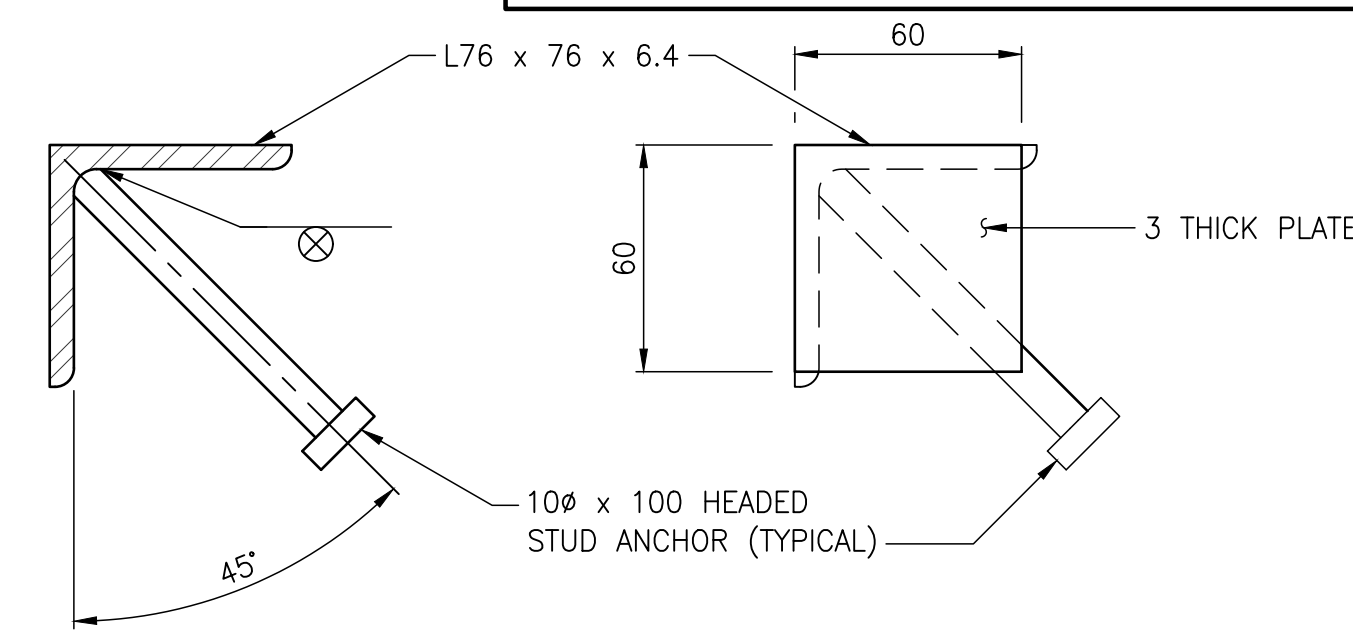
COMPRESSIBLE FOAM PAD MK. "FP1"

SCALE 1:5



GIRDER END ANGLE MK. "EA1"

SCALE 1:5



SECTION E-E

Scale 1:2

END VIEW

Scale 1:2

BILL OF MISCELLANEOUS METAL FOR TEN 18.0 m LONG PRECAST PRESTRESSED CONCRETE CHANNEL GIRDERS

MK.	NO.	DESCRIPTION	SIZE	MASS PER UNIT	TOTAL MASS
U1	22	RAILPOST ANCHOR UNIT - GALVANIZED			266.93
		EACH UNIT IS FABRICATED FROM:			
		RETAINING ANGLE	1 - L152 X 152 X 13, 250 LONG - AS DETAILED	7.261	
		HEAVY HEX NUT	2 - FOR 22Ø BOLT, GRADE DH OR 2H	0.218	
		HEADED STUD ANCHOR	2 - 19Ø X 150 LONG, ASTM A108	0.742	
		NELSON DEFORMED BAR ANCHOR	3 - FOR 19Ø BOLT X 600 LONG, TYPE D2L	3.912	
		CAPPED TUBES	2 - METAL OR PLASTIC - AS DETAILED		
		TOTAL		12.133	
U2	22	RAILPOST ANCHOR UNIT - GALVANIZED			64.13
		EACH UNIT IS FABRICATED FROM:			
		PLATE	1 - PL250 X 100, 13 THICK - AS DETAILED	2.551	
		HEAVY HEX NUT	2 - FOR 19Ø BOLT, GRADE DH OR 2H	0.154	
		HEADED STUD ANCHOR	2 - 10Ø X 100 LONG, ASTM A108	0.210	
		CAPPED TUBES	2 - METAL OR PLASTIC - AS DETAILED		
		TOTAL		2.915	
FL1	20	FERRULE LOOP INSERT - STAINLESS STEEL	FOR 13Ø BOLT, RICHMOND ANCHOR, TYPE F-42	0.680	13.60
PD1	8	POST-TENSIONING DUCT - GALVANIZED	88.9Ø X 1 020 LONG DUCT	13.023	78.14
			C/W 12 THICK PLATE - AS DETAILED		
PD2	32	POST-TENSIONING DUCT - GALVANIZED	88.9Ø X 1 020 LONG DUCT	11.526	276.62
DP1	4	EXTERIOR GIRDER END DIAPHRAGM PLATE - GALVANIZED	PL130 X 144, 12 THICK - AS DETAILED	1.763	7.05
DP2	4	EXTERIOR GIRDER INTERMEDIATE DIAPHRAGM PLATE - GALVANIZED	PL130 X 144, 12 THICK - AS DETAILED	1.763	7.05
FP1	72	COMPRESSIBLE FOAM PAD	270 X 270, 10 THICK - AS DETAILED		
EA1	20	GIRDER END ANGLE - GALVANIZED			151.20
		EACH UNIT IS FABRICATED FROM:			
		ANGLE	1 - L64 X 64 X 6.4, 1 194 LONG - AS DETAILED	7.180	
		END PLATE	2 - PL60 X 60, 3 THICK - AS DETAILED	0.170	
		HEADED STUD ANCHOR	2 - 10Ø X 100 LONG, ASTM A108	0.210	
		TOTAL		7.560	
TOTAL MASS:					864.72 kg

NOTES:

- ALL MATERIAL IN THE ABOVE BILL SHALL BE SUPPLIED BY THE GIRDER CONTRACTOR.
- ALL STRUCTURAL STEEL SHALL CONFORM TO CAN/CSA G40.21-13, GRADE 300W.
- ALL MATERIAL NOTED IN THE ABOVE BILL SHALL BE HOT DIP GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH CSA G154-M92 (R2003) FOR A MINIMUM NET RETENTION OF 610 G/M² UNLESS OTHERWISE STATED IN THE SPECIFIED MATERIAL ASTM STANDARDS. THE FABRICATOR AND GALVANIZER SHALL SAFEGUARD AGAINST EMBRITTEMENT USING RECOMMENDED PRACTICES FROM APPLICABLE STANDARDS.
- SEAL ALL WELDS PRIOR TO GALVANIZING.
- GRADE DH OR 2H GALVANIZED NUTS FOR A325 BOLTS SHALL BE OVERTAPPED TO A MINIMUM AMOUNT REQUIRED FOR THE FASTENER ASSEMBLY IN ACCORDANCE WITH ASTM F3125 CLASS 55. THE NUTS SHALL BE LUBRICATED WITH A LUBRICANT CONTAINING A VISIBLE DYE. THE LUBRICANT SHALL BE CLEAN AND DRY TO THE TOUCH.
- ALL BOLTS AND INSERTS IN THE ABOVE BILL SHALL BE IMPERIAL THREAD.

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

SEAL:

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
WSP Canada Inc.
No. 5750

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ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): CP

DATE: 2023-01-30
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DISCIPLINE: BRIDGE

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PROJECT NUMBER: 221-07931-00

CLIENT: **The City of Morden**

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

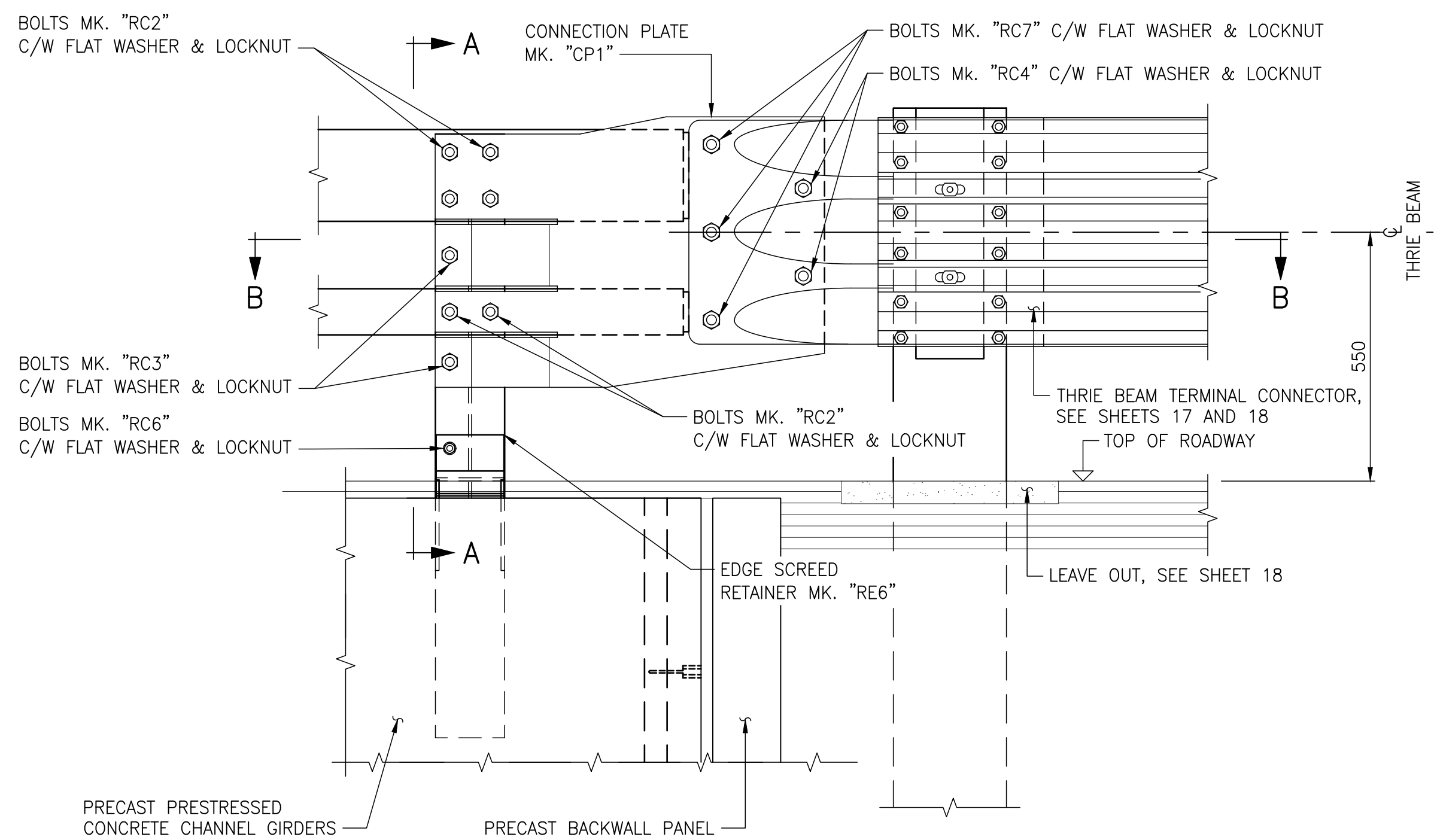
CLIENT REF. #: --

TITLE: **PRECAST PRESTRESSED CHANNEL GIRDERS MISCELLANEOUS METAL DETAILS**

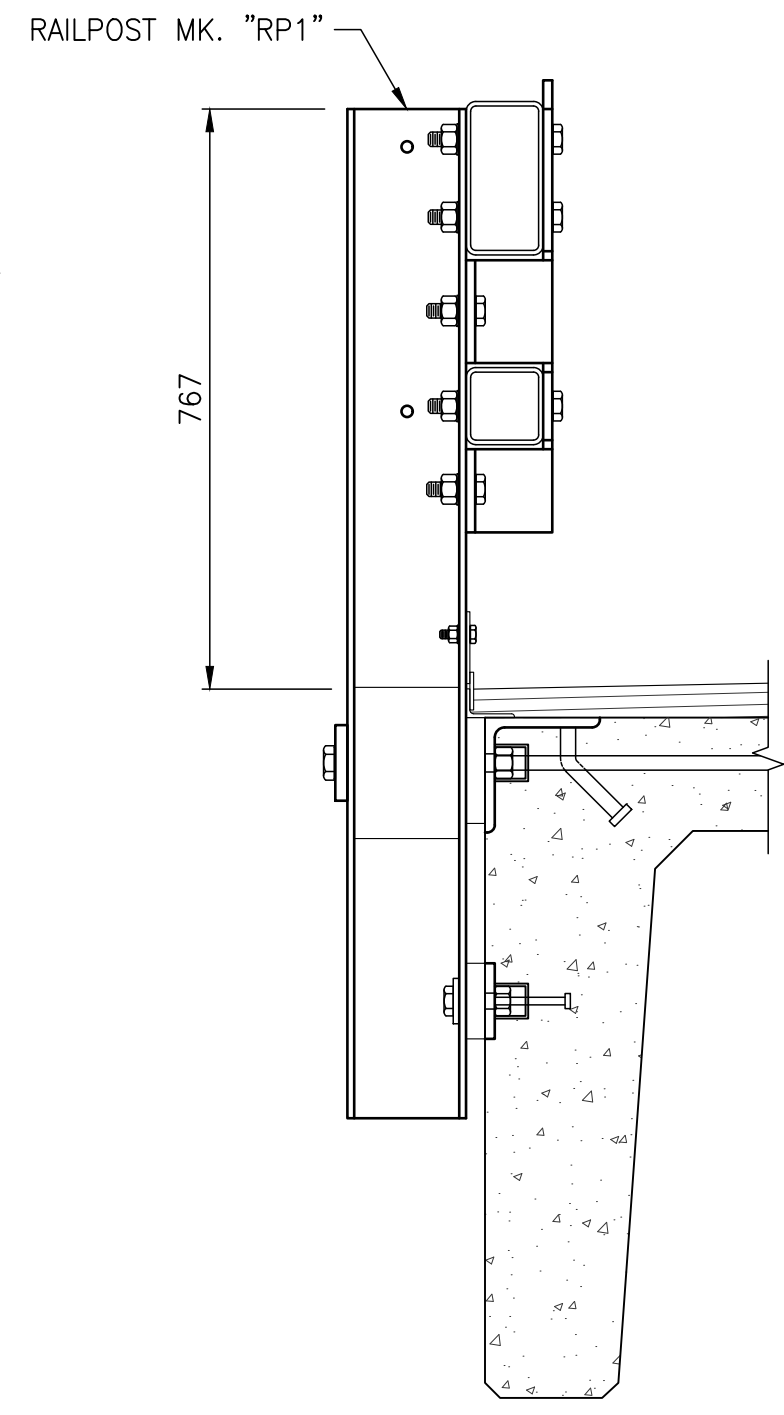
PROJECT: **PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK**

DRAWING NUMBER: 15
REV: 0

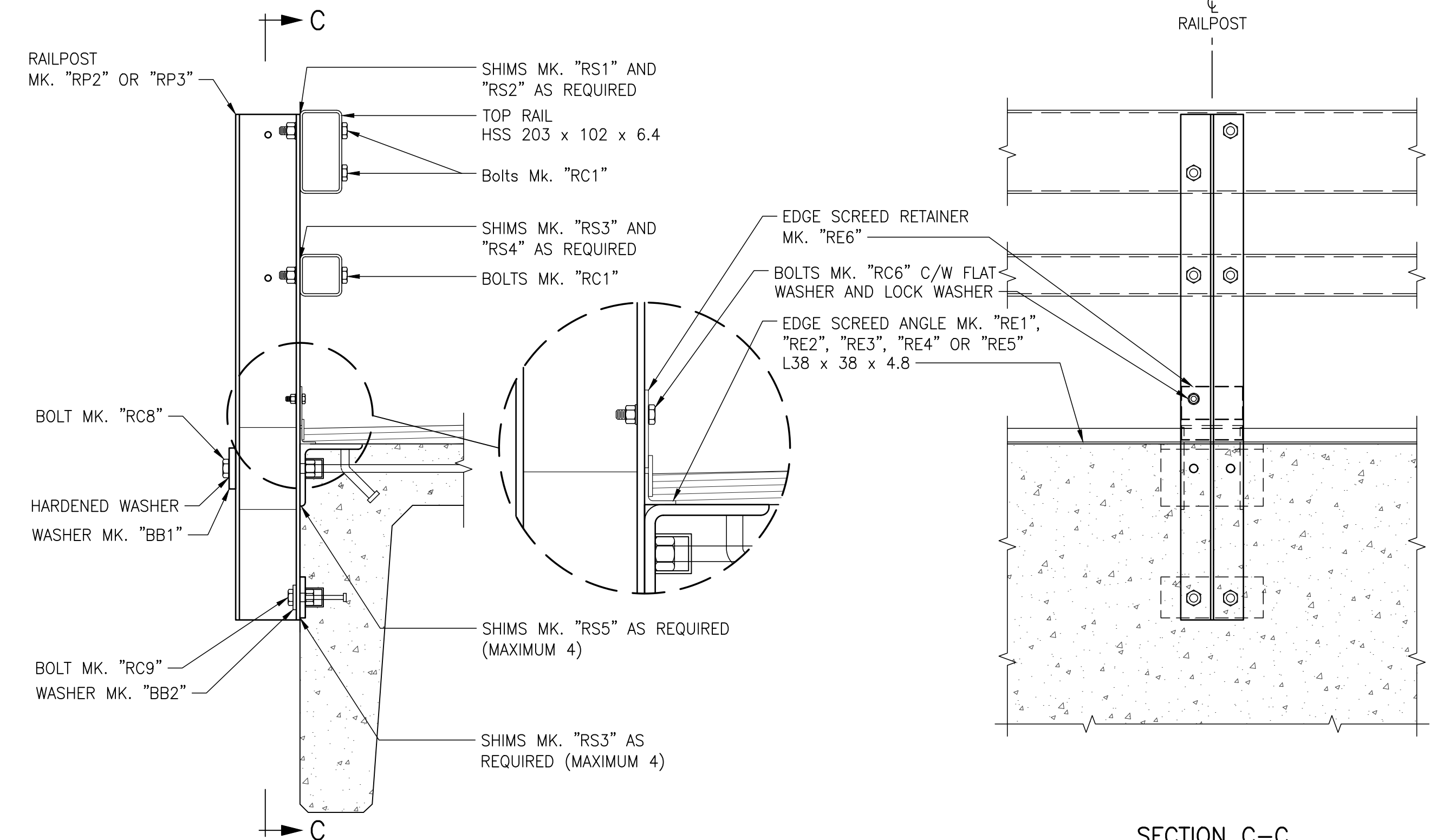
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FRONT SIDE ELEVATION

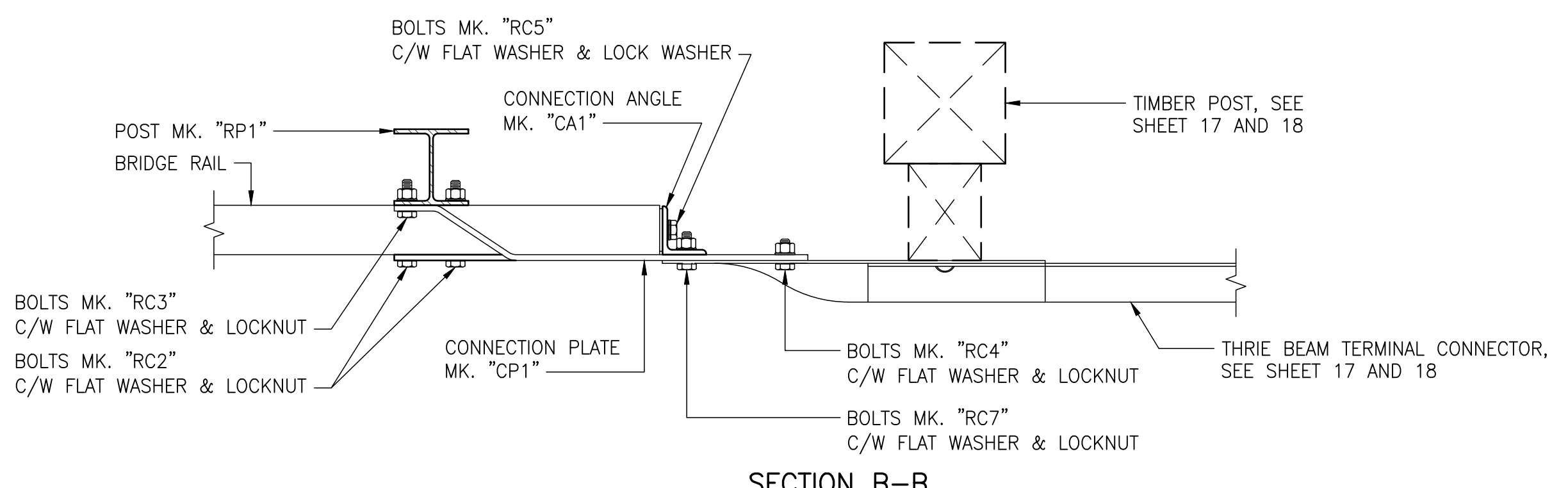


SECTION A-A



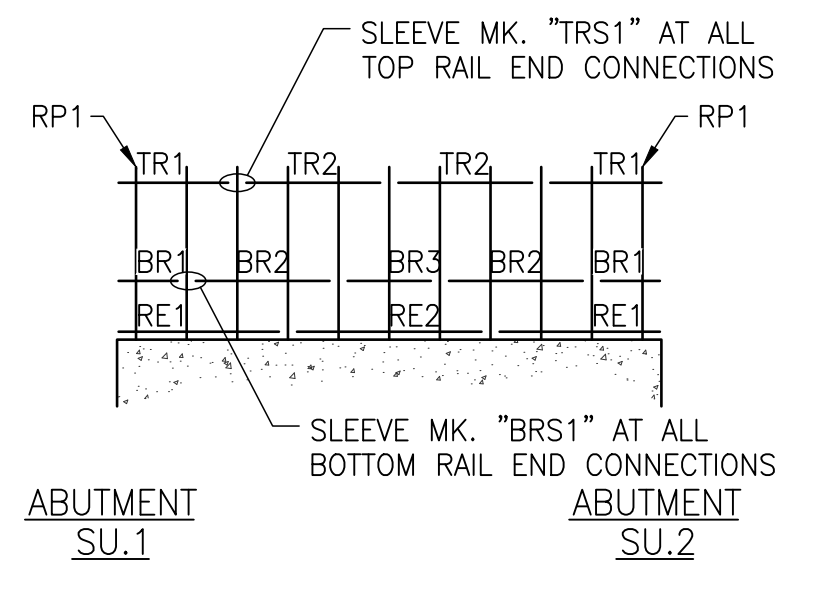
RAILPOST ERECTION DETAILS

SCALE 1:10



APPROACH RAIL CONNECTIONS DETAILS

SCALE 1:10

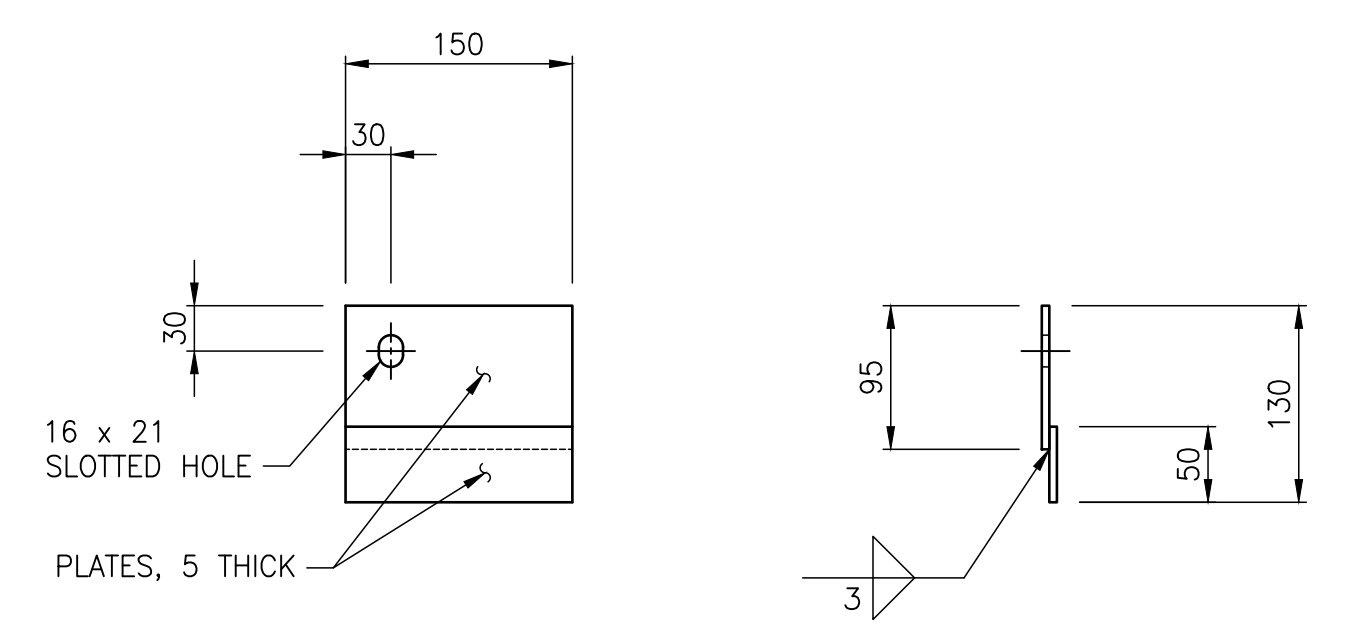


BRIDGE GUARDRAIL LAYOUT

EASTBOUND GUARDRAIL LOOKING NORTH.
N.T.S.

RAILS			SLEEVES		EDGE SCREED ANGLE		RAILPOSTS	
TR1	TR2	-	TRS1	-	RE1	RE2	RP1	RP2
2	2	-	3	-	2	1	2	9
BR1	BR2	BR3	BRS1	-				
2	2	1	4	-				

Quantities shown in table are for both sides of the bridge

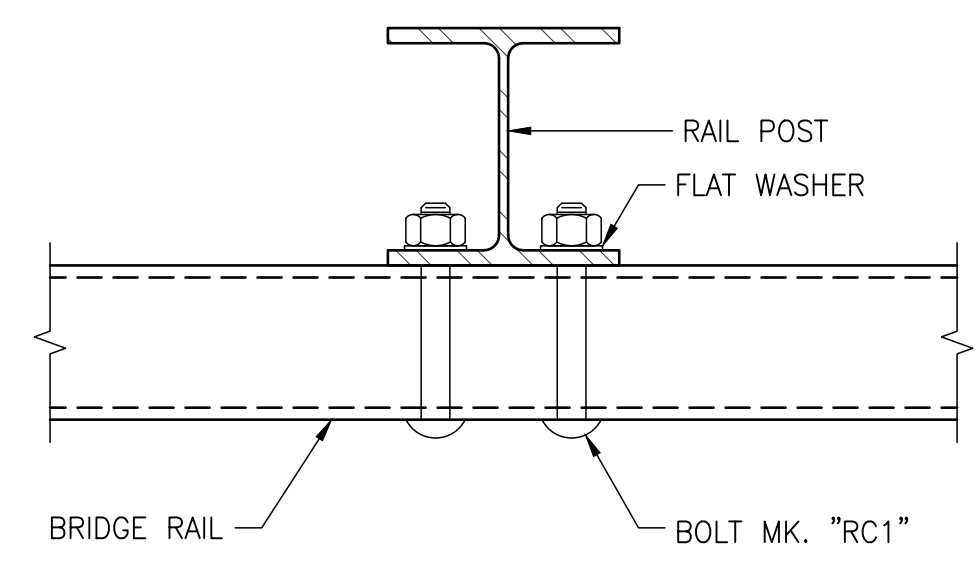


EDGE SCREED RETAINER MK. "RE3"

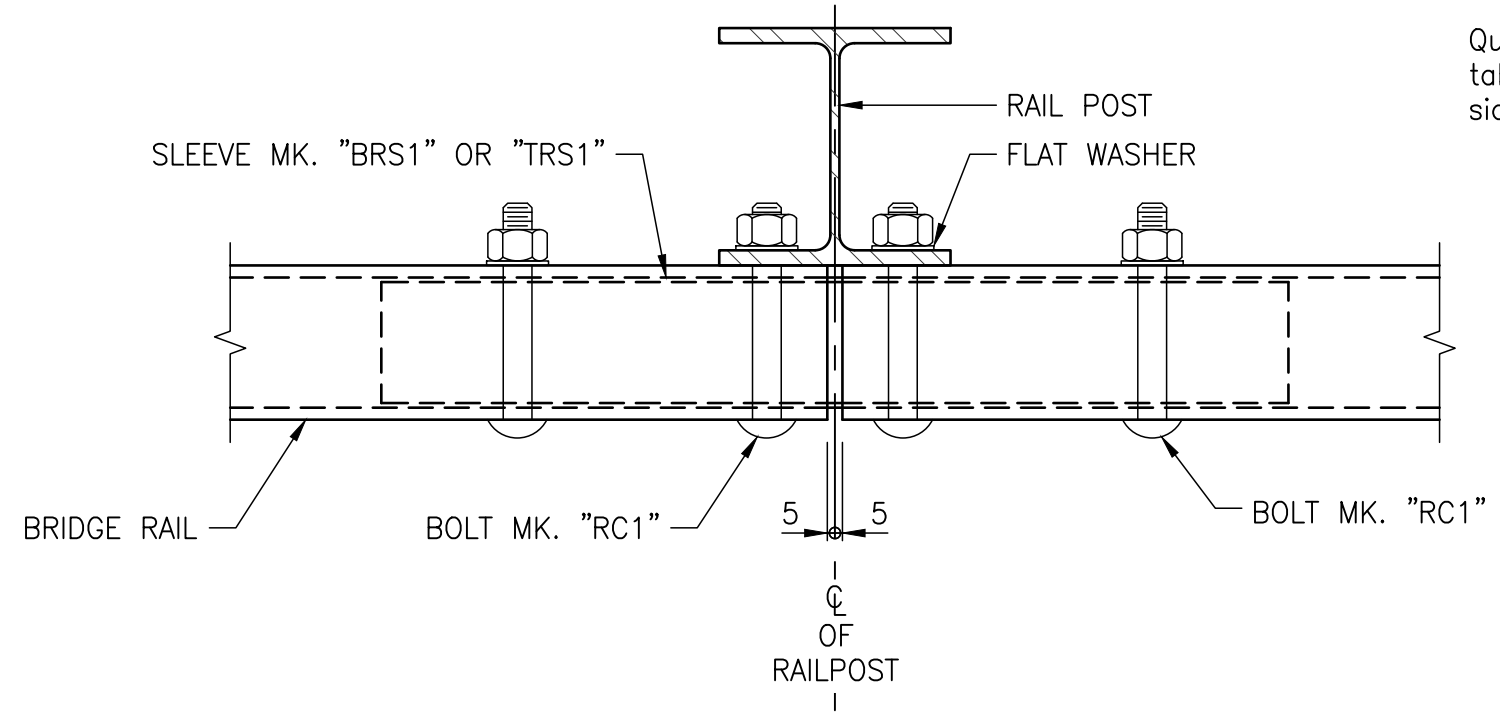
SCALE 1:5

NOTES:

- FOR RAILING DETAILS, SEE SHEETS 18.
- FOR RAIL POST DETAILS, SEE SHEET 17.
- FOR BILL OF MISCELLANEOUS METAL, SEE SHEET 18.
- HIGH STRENGTH BOLTS MK. "RC8" AND "RC9" SHALL BE TIGHTENED BY TURN-OF-NUT METHOD AS PER SPECIFICATION 1061. THESE BOLTS TO BE SUPPLIED BY THE GIRDER FABRICATOR. FOR QUANTITIES SEE BILL OF MISCELLANEOUS ON GIRDER SHEET.
- HIGH STRENGTH BOLTED CONNECTION MAY BE SHIMMED TO A MAXIMUM OF 12 mm WITH SHIMS MK. "RS3" AND "RS4".



TYPICAL OF CONTINUOUS RAILS



RAIL END CONNECTION

RAILING ERECTION DETAILS

SCALE 1:5

REVISION:	REVISION:
0	2023-01-30
ISSUED FOR TENDER	MB
DATE	DESCRIPTION
BY	DATE
DESCRIPTION	BY

SEAL:

ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): FD

DATE: 2023-01-30

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DISCIPLINE: BRIDGE

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PROJECT NUMBER: 221-07931-00

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CLIENT: The City of Morden

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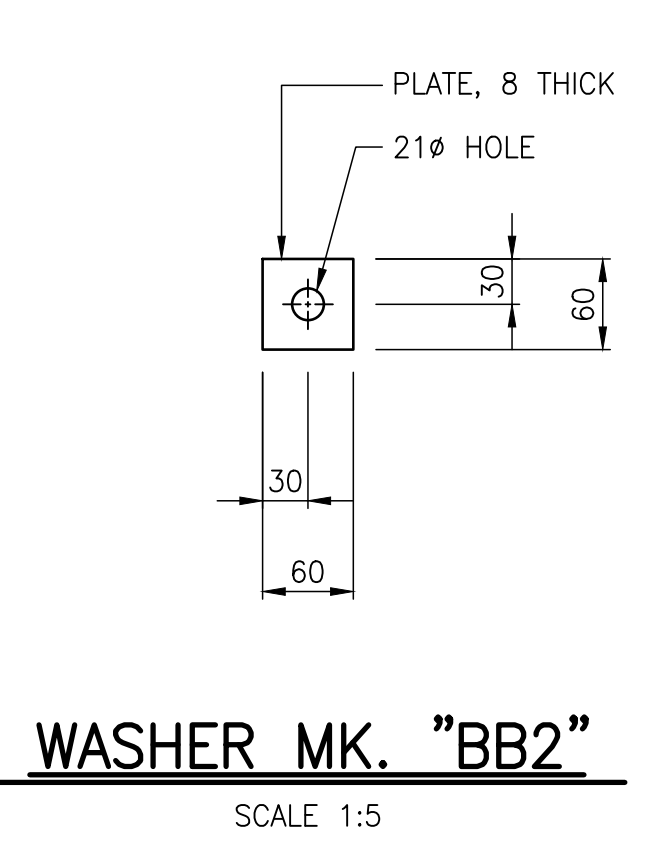
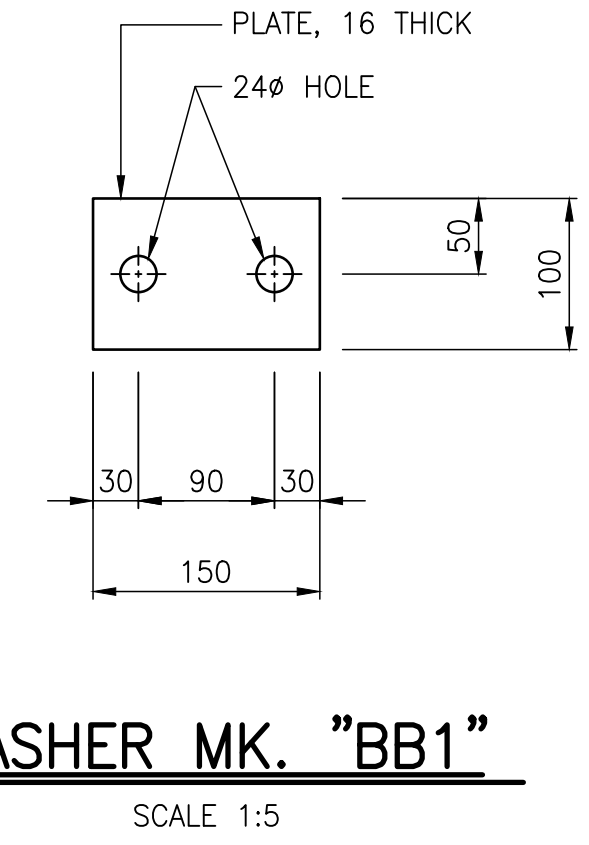
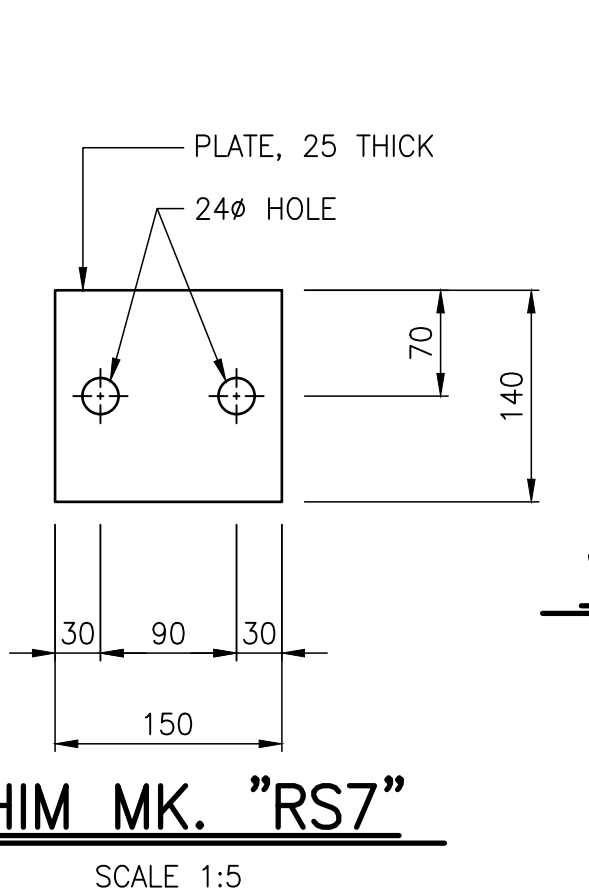
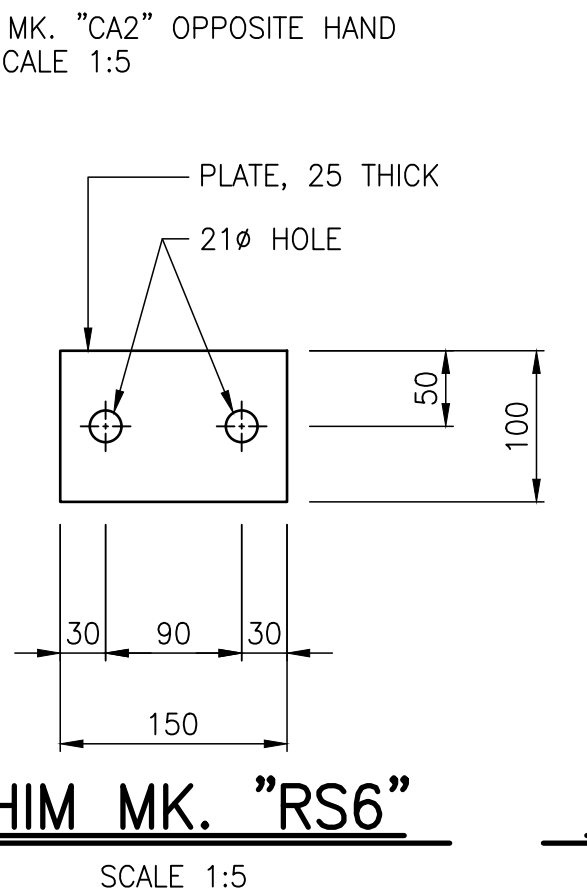
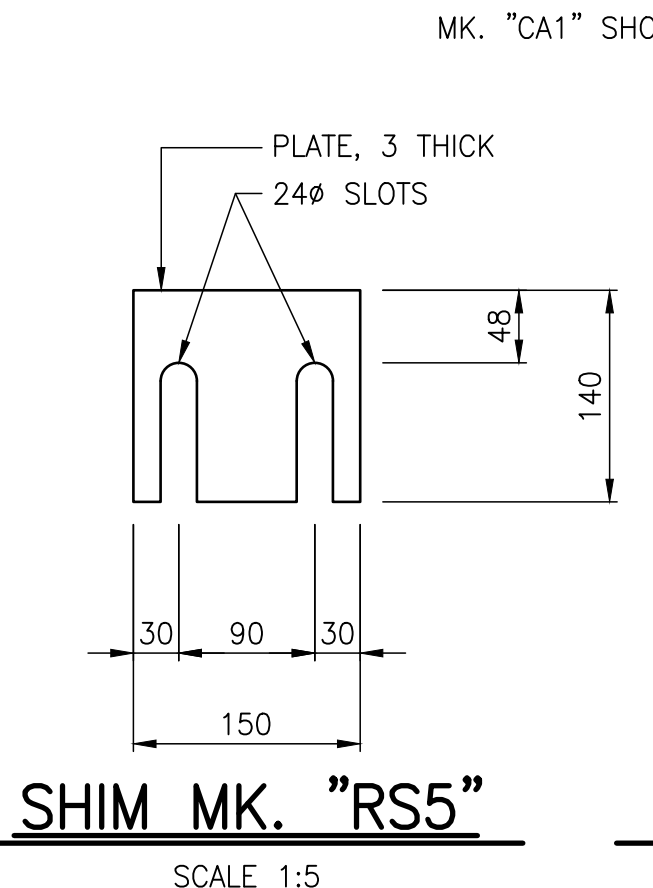
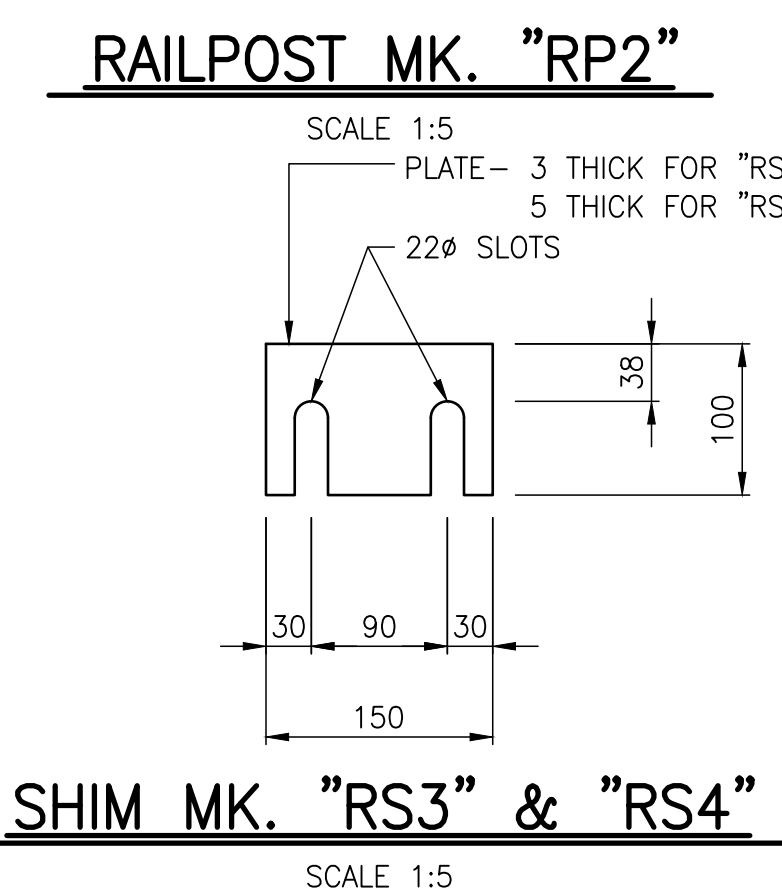
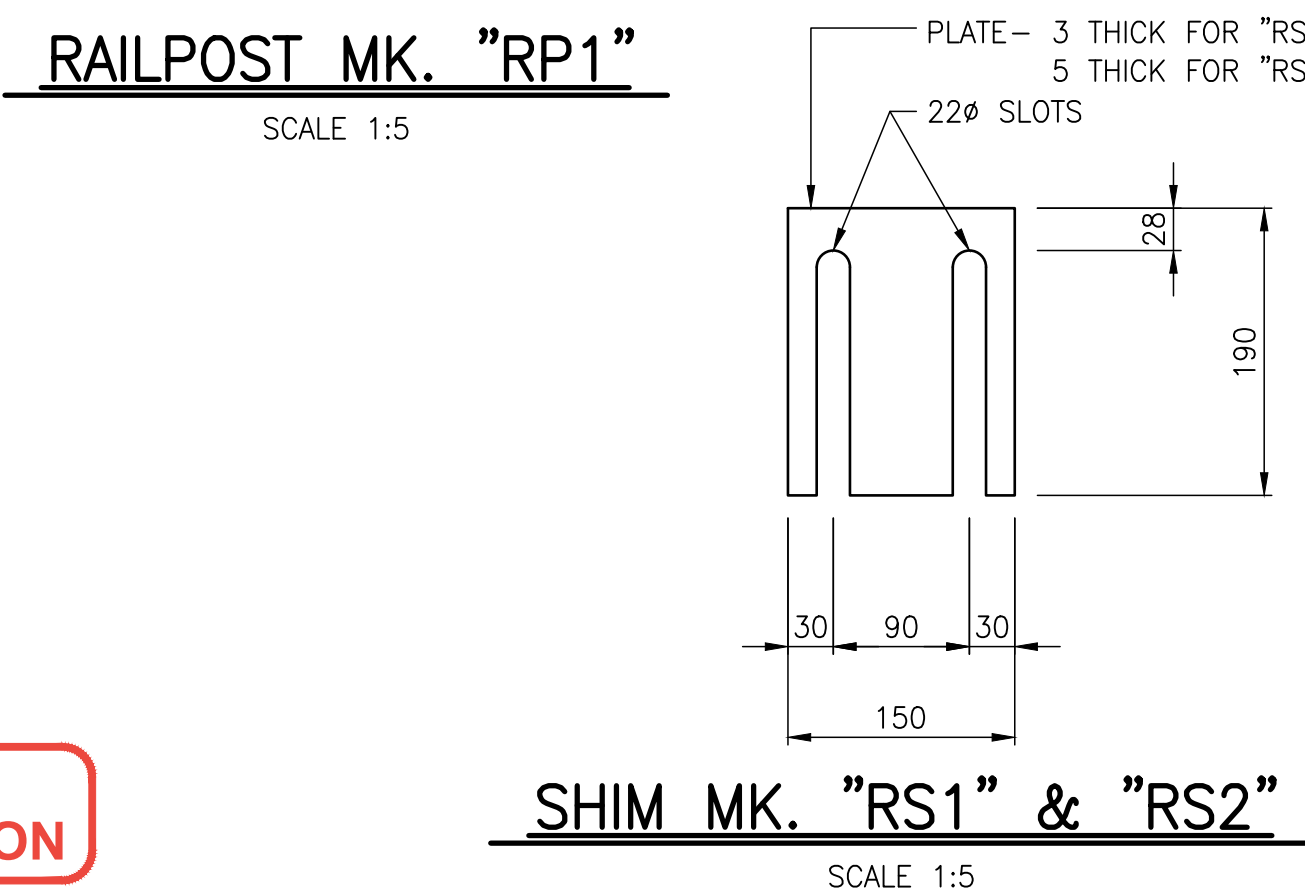
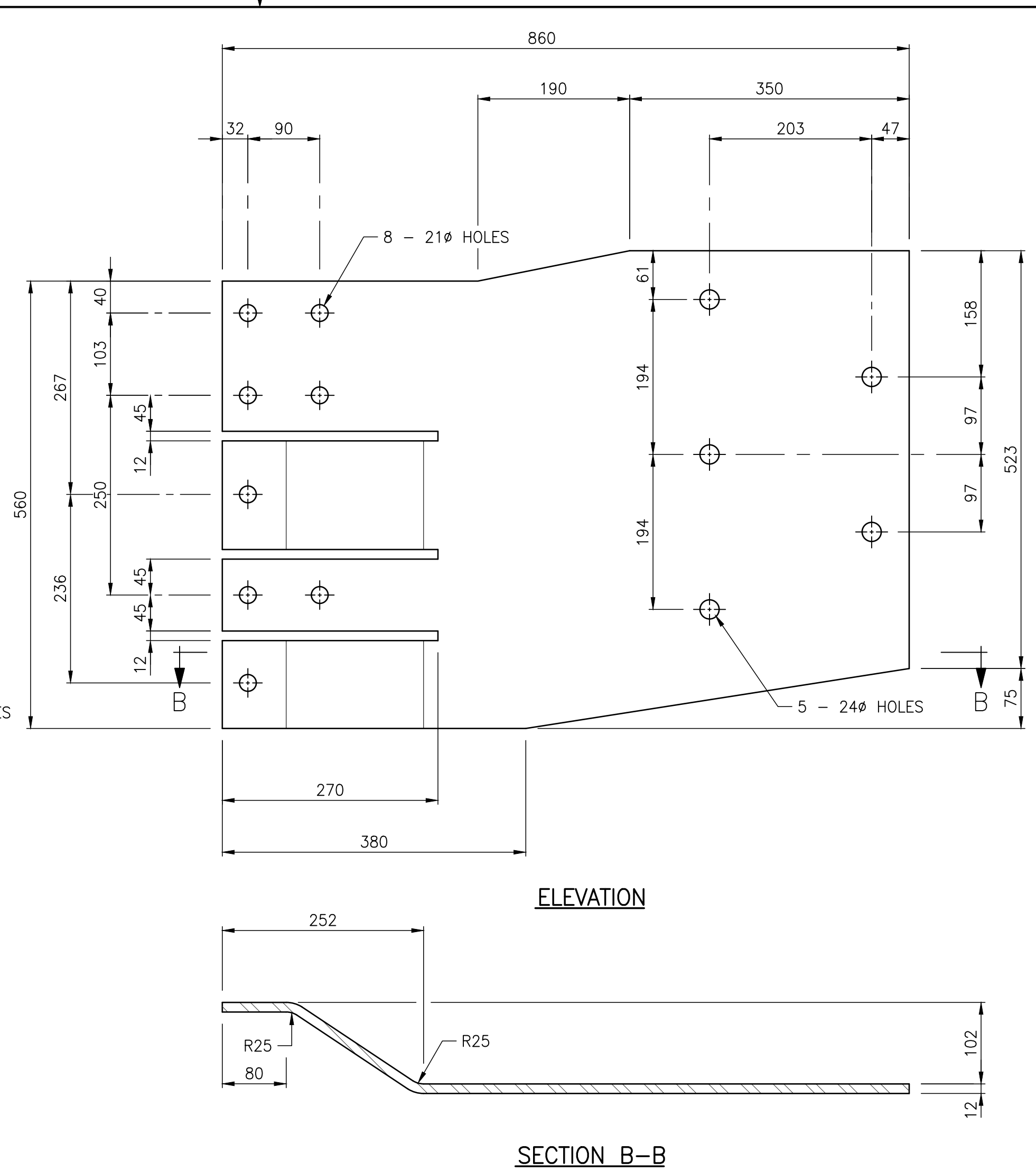
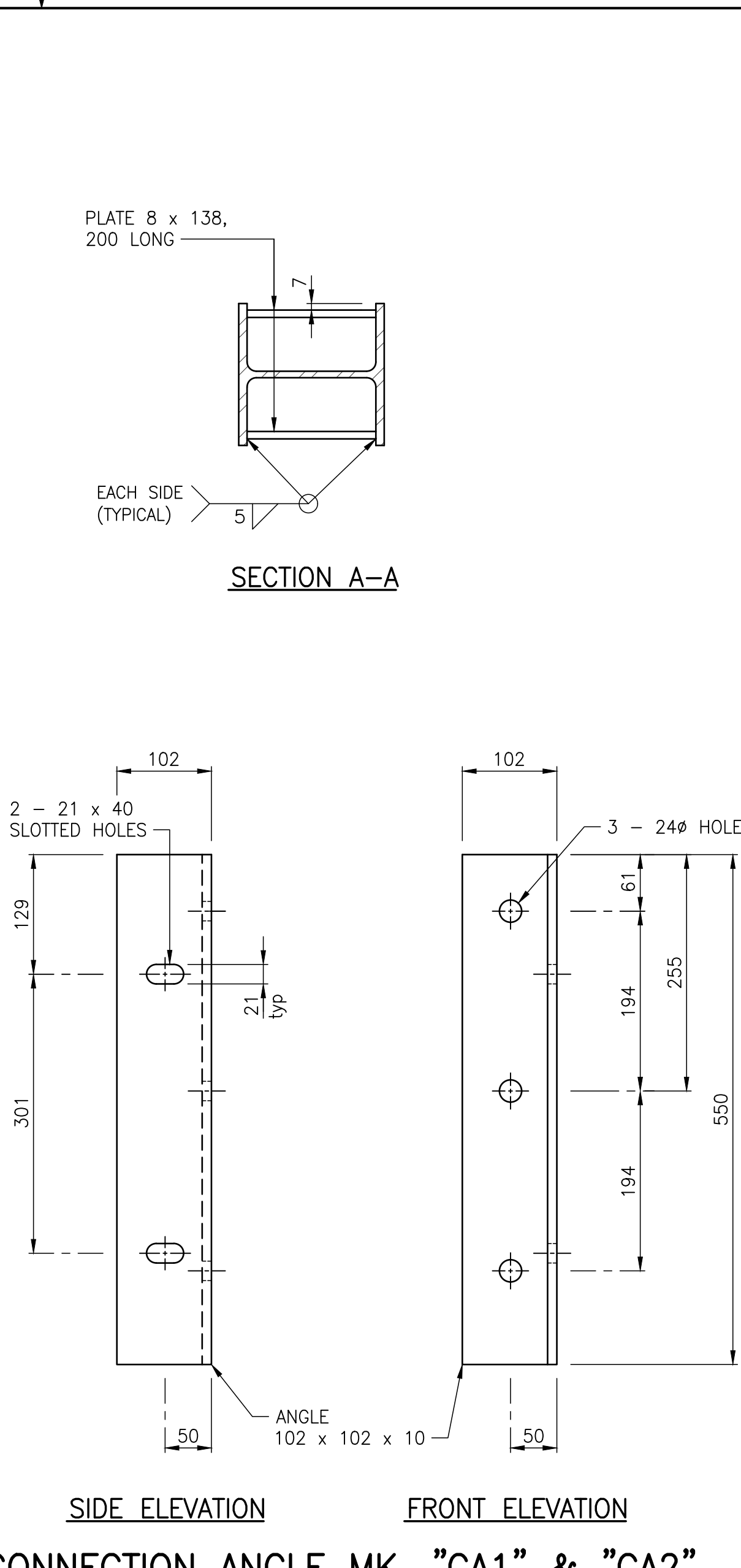
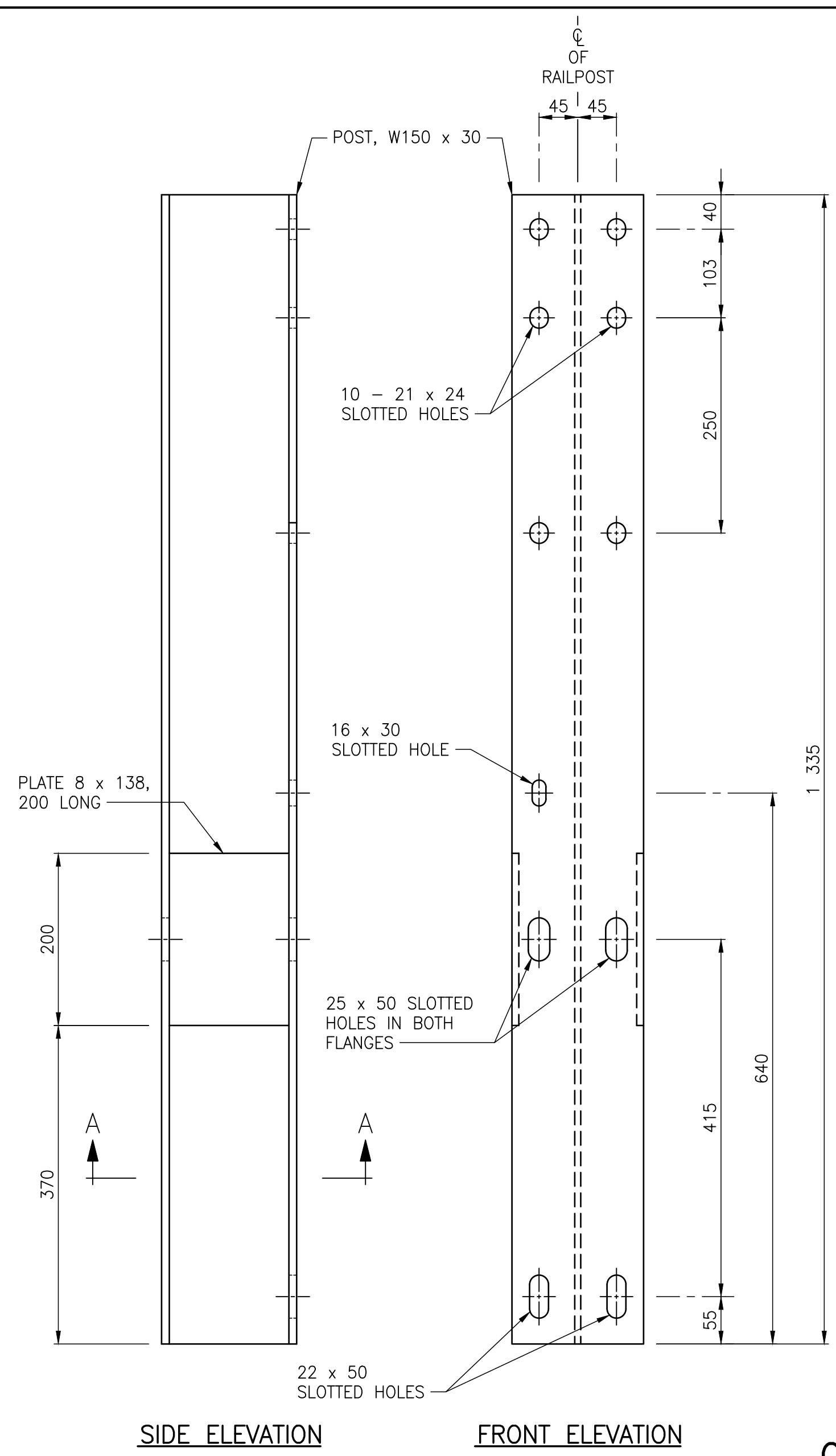
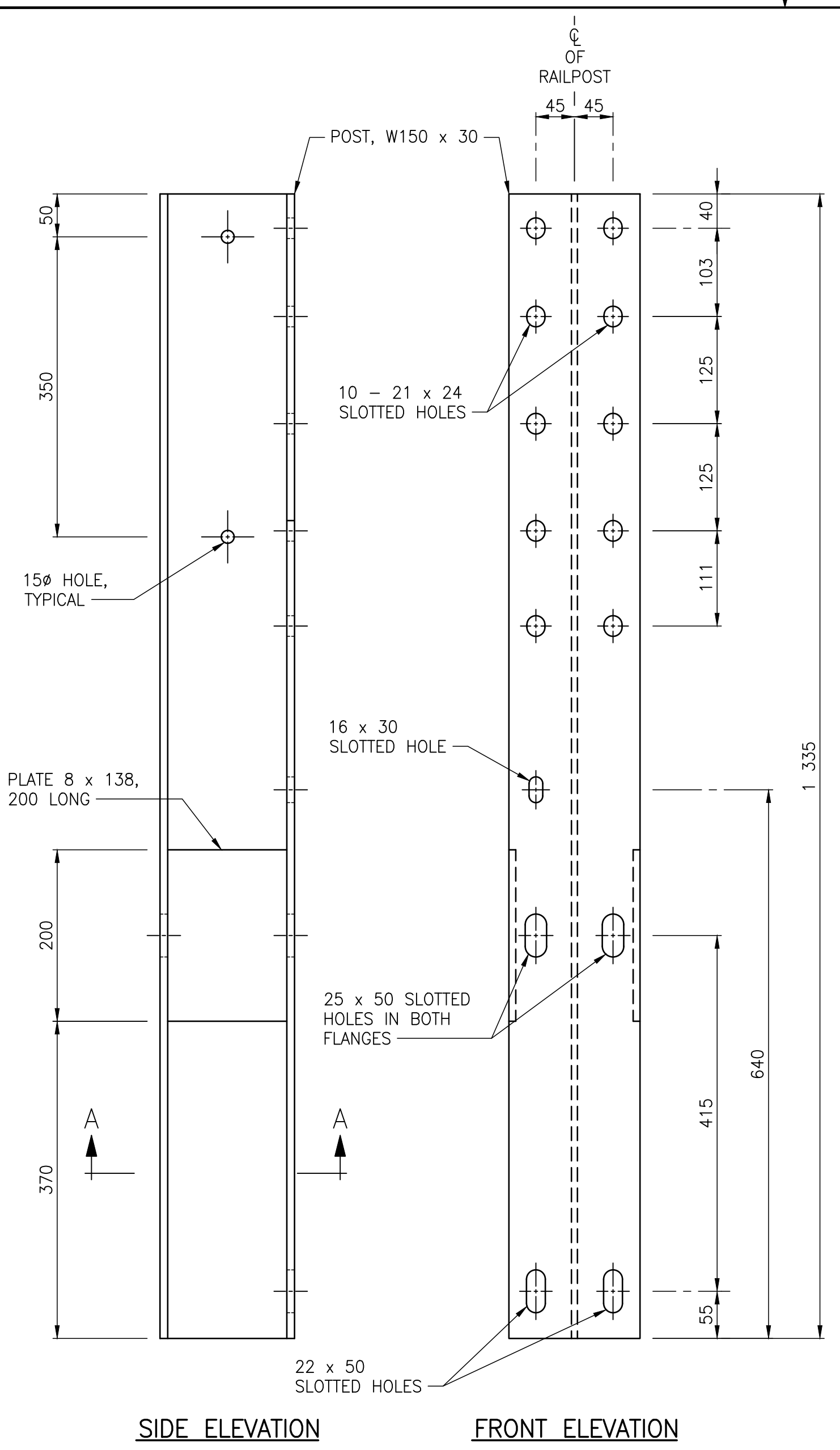
TITLE: BRIDGE RAILING LAYOUT AND ASSEMBLY DETAILS

PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 16

REV: 0

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 2023-01-30 10:51:00



NOTES:

1. ALL BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM F3125 GRADE A325 EXCEPT WHERE NOTED OTHERWISE.

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

SEAL:

ENGINEERS GEOSCIENTISTS MANITOBA
Certificate of Authorization
WSP Canada Inc.
No. 5750

ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): FD
DISCIPLINE: BRIDGE

DATE: 2023-01-30

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

25mm

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1600 Buffalo Place, Winnipeg, Manitoba R3T 6B8
T 204-477-6650 | www.wsp.com

PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: -

TITLE:

BRIDGE POST DETAILS

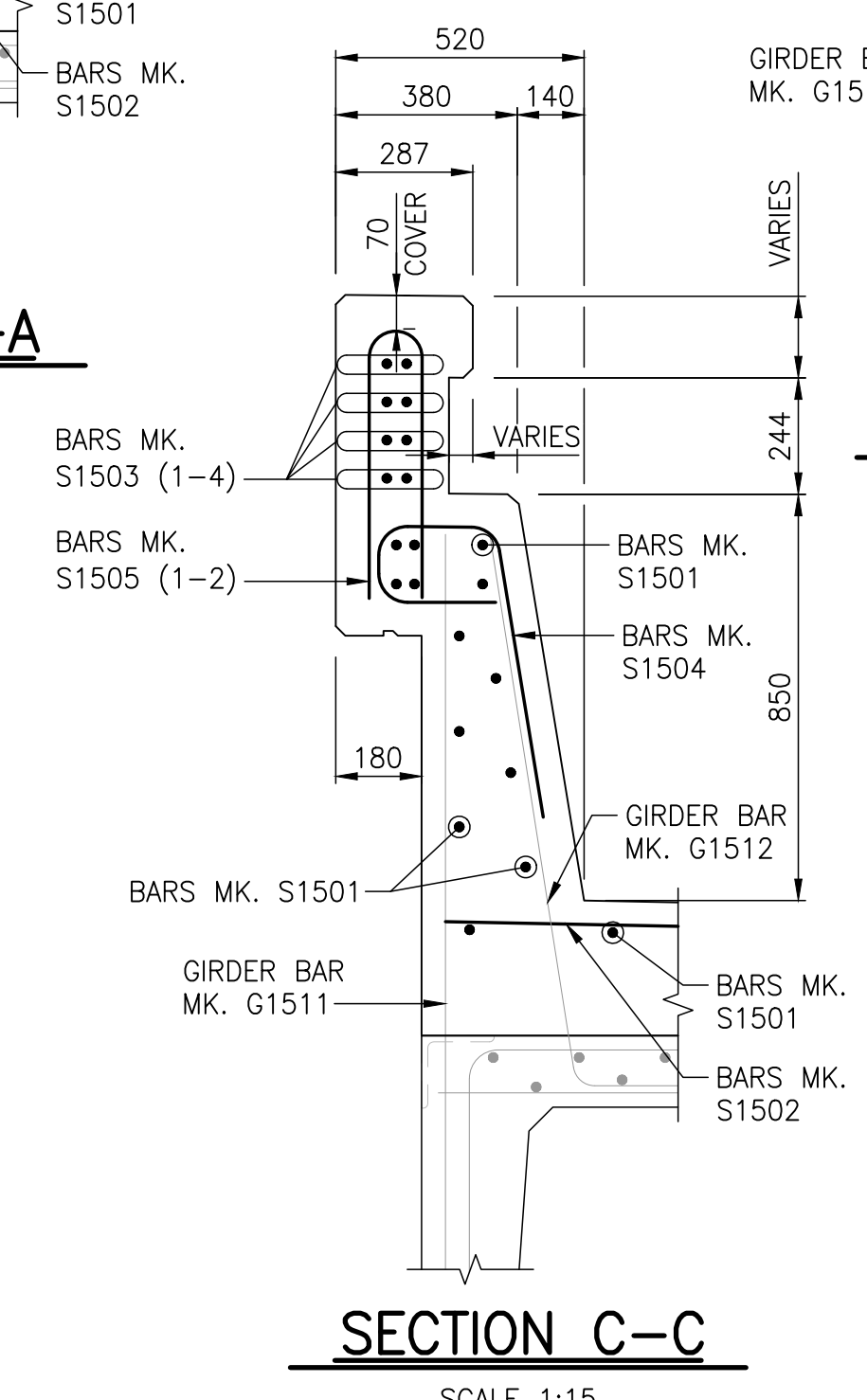
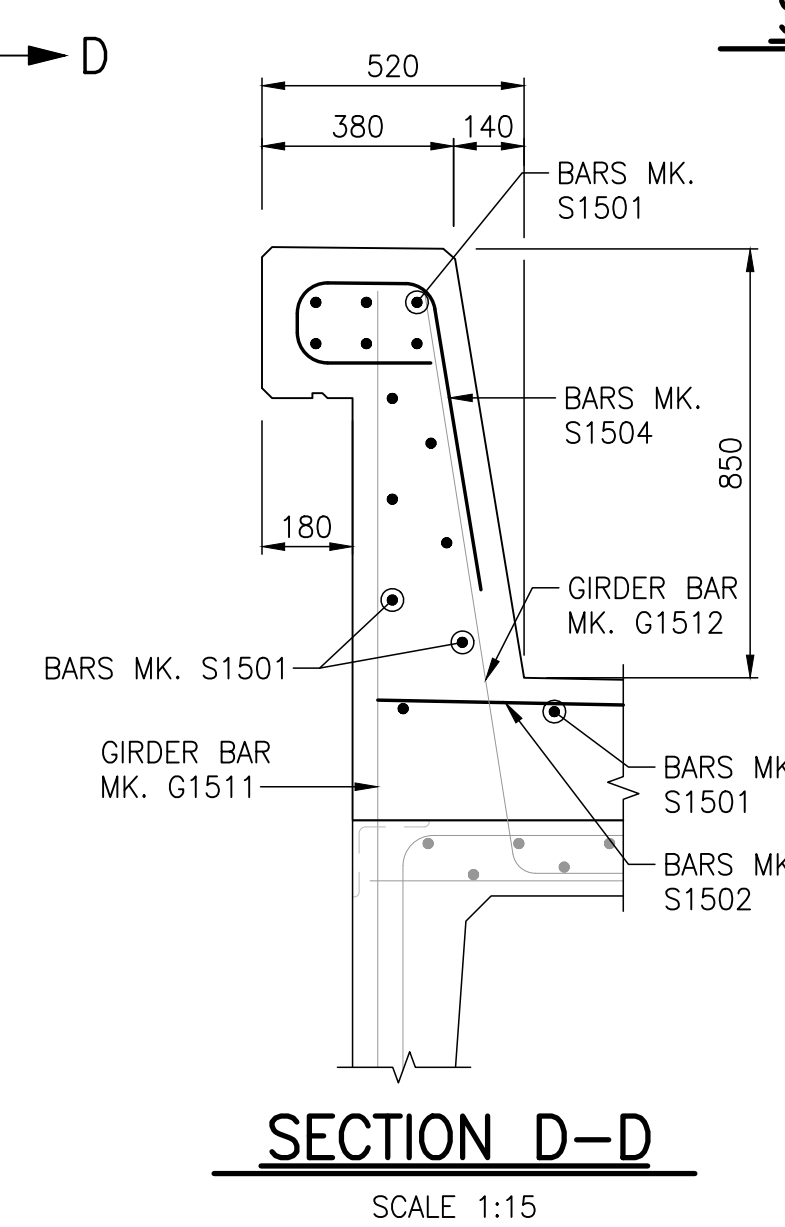
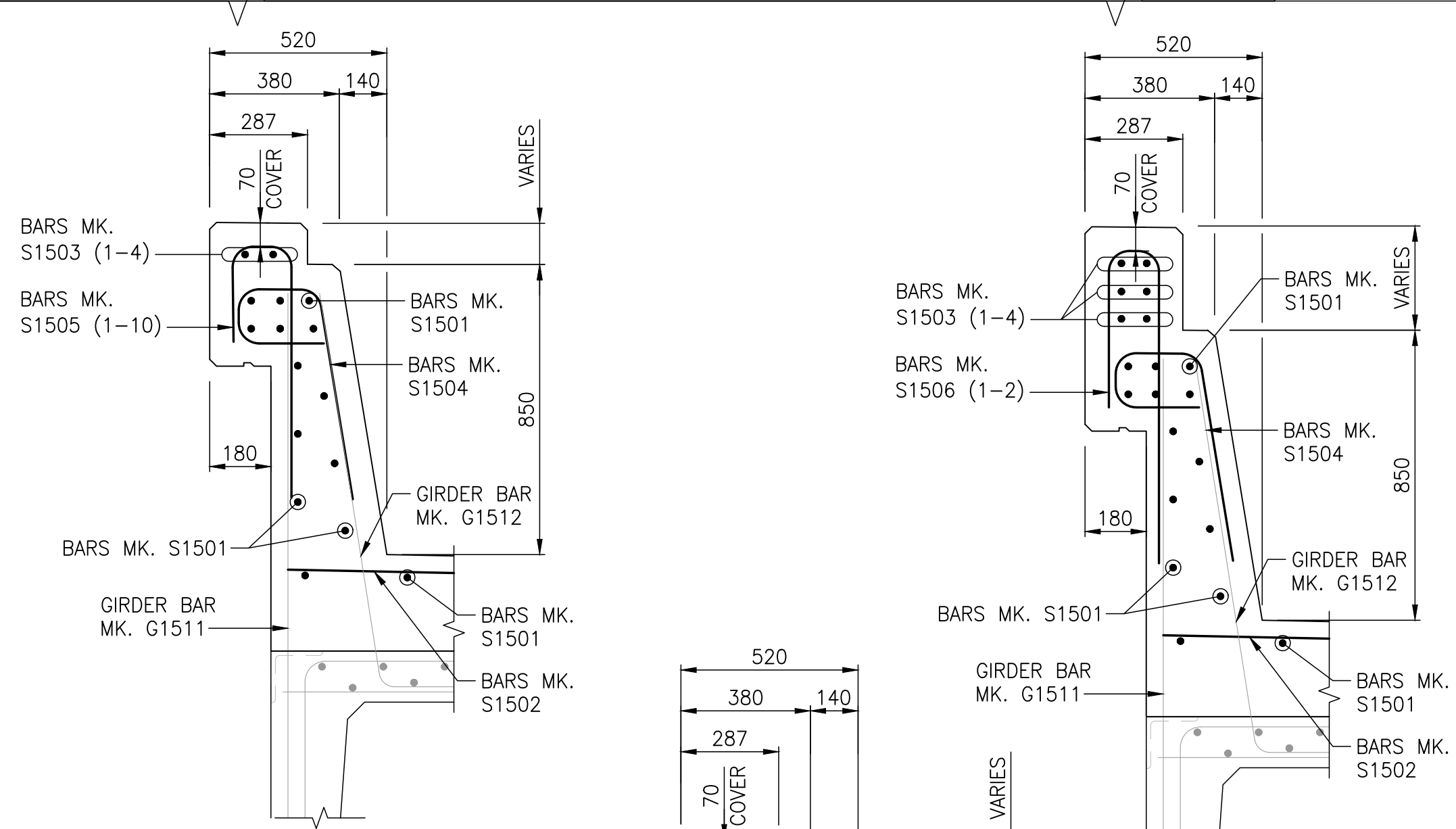
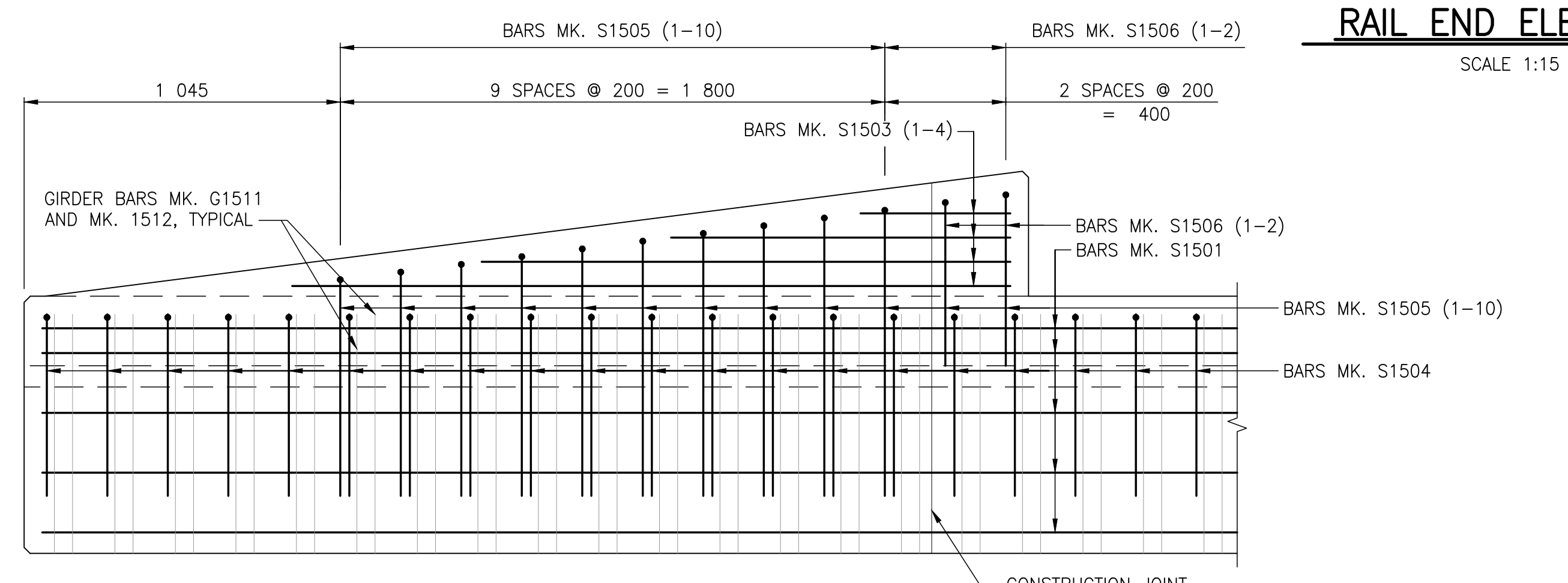
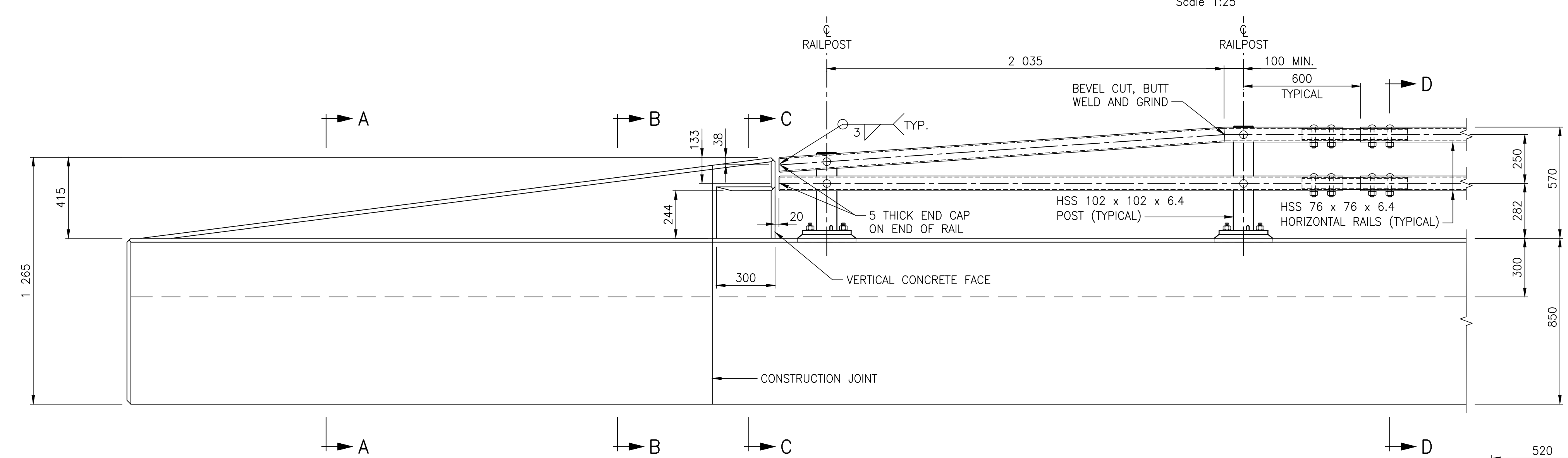
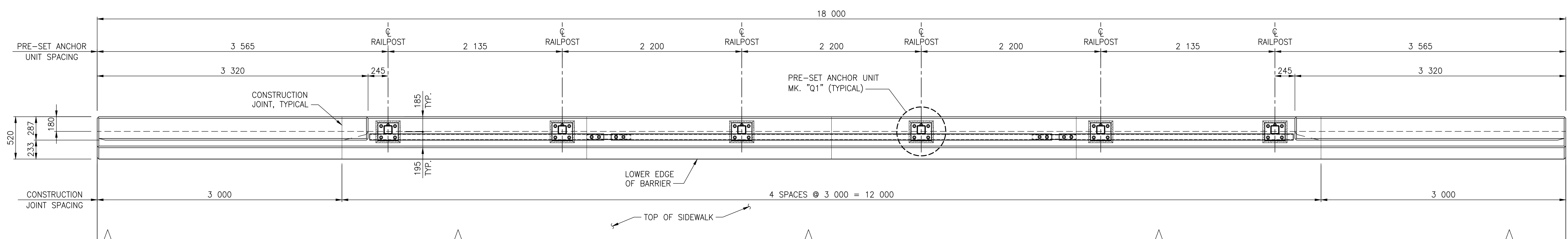
PROJECT:

PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK

DRAWING NUMBER: 17

REV: 0

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 2023-01-30 10:51:31 AM
 2023-01-30 10:51:31 AM



NOTES:
1. FOR BILL OF REINFORCING STEEL, SEE SHEET 21.

NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

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MANITOBA**
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ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): FD
DISCIPLINE: BRIDGE

DATE: 2023-01-30
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

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PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE:

**TL-4 COMBINATION BARRIER
BRIDGE RAIL DETAILS
(SHEET 2 OF 3)**

PROJECT:

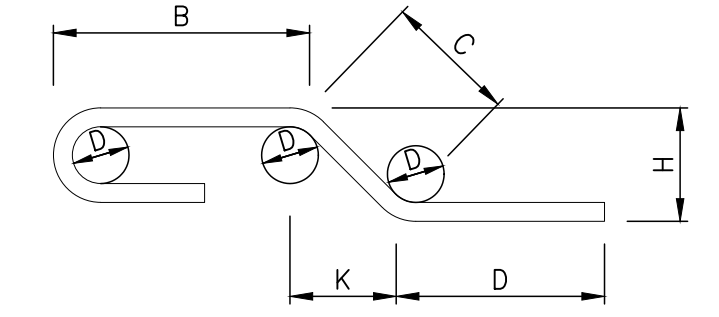
**PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK**

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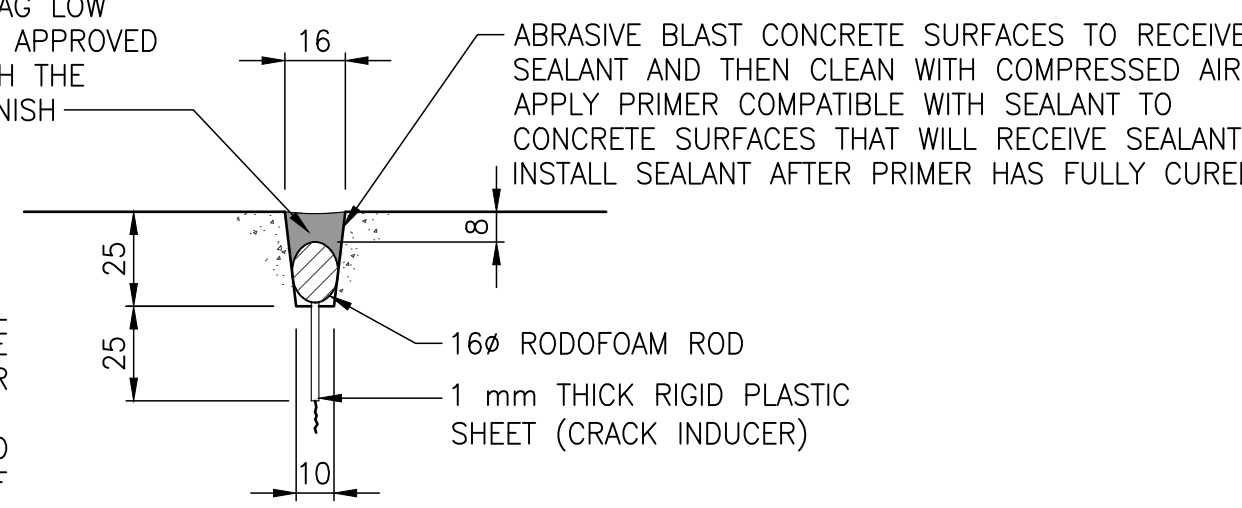
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 2023-01-30 11:17 AM

NOTES:

1. ALL DIMENSIONS GIVEN IN BENDING DIAGRAM ARE OUT TO OUT, EXCEPT RADII AND EXTENSIONS ON 90°, 135° & 180° HOOKS. EXTENSIONS ON 90°, 135° & 180° HOOKS ARE THE "A" OR "G" DIMENSIONS FOR STANDARD 90°, 135° & 180° HOOKS REFERENCED FROM THE RSIC "MANUAL OF STANDARD PRACTICE". RADII ARE INSIDE DIMENSIONS. ALL REINFORCING STEEL BENDS AND HOOKS SHALL CONFORM TO CLAUSE 6.6.2 OF CSA A23.1-04, UNLESS NOTED OTHERWISE IN THE BILL OF REINFORCING STEEL.
2. ALL REINFORCING STEEL SHALL BE DEFORMED STEEL CONFORMING TO CAN/CSA G30.18-19 GRADE 400W FOR GIRDERS.
3. ALL REINFORCING STEEL FOR BARRIER AND SIDEWALK SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A767M-16 TO A MINIMUM ZINC THICKNESS OF 610 g/m²
4. REINFORCING CLEAR COVER TO BE 25mm UNLESS NOTED OTHERWISE.
5. LIKE BARS SHALL BE BUNDLED, SECURELY TIED AND IDENTIFIED AS TO MARK AND SITE NO. BY APPROPRIATE MEANS. ALL OTHER ITEMS TO BE IDENTIFIED IN A SIMILAR FASHION.
6. ALL BARS SHALL BE BENT IN ACCORDANCE WITH THE FOLLOWING DETAIL:



SEALANT SHALL BE SIKAFLEX 15LM NON-SAG LOW MODULUS POLYURETHANE SEALANT OR AND APPROVED EQUIVALENT. SEALANT COLOUR SHALL MATCH THE COLOUR SPECIFIED CONCRETE SURFACE FINISH



- NOTES:**
- CONTROL JOINTS AT 3 000 SPACING. AT CONTROL JOINTS, LONGITUDINAL REINFORCEMENT SHALL BE DISCONTINUOUS AND HAVE 60 mm CONCRETE COVER FROM THE CENTERLINE OF THE JOINTS.
 - CONTROL JOINT CRACK INDUCER SHALL BE REMOVED PRIOR TO SURFACE PREPARATION AND APPLICATION OF SEALANT PRIMER.
 - CONTROL JOINT SEALANT SHALL BE APPLIED AND CURED PRIOR TO PLACING WATERPROOFING AND ACP.

CONCRETE JOINT DETAIL

SCALE 1:2

BILL OF REINFORCING STEEL FOR BARRIER AND SIDEWALK

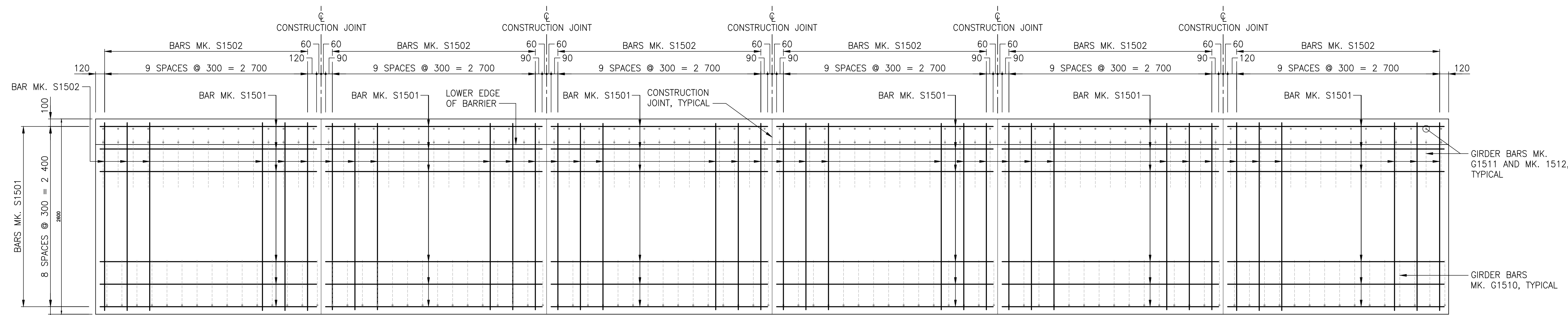
MARK	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM
S1501	STR		2 880	54	244.17	
S1502	STR		2 480	60	233.62	
S1503-1	STR		2 370	4	14.88	
S1503-2	STR		1 745	4	10.96	
S1503-3	STR		1 120	4	7.03	
S1503-4	STR		495	4	3.11	
S1504	BENT	95	1 240	90	175.21	
S1505-1	BENT	95	1 175	2	3.69	
S1505-2	BENT	95	1 225	2	3.85	
S1505-3	BENT	95	1 275	2	4.00	
S1505-4	BENT	95	1 325	2	4.16	
S1505-5	BENT	95	1 375	2	4.32	
S1505-6	BENT	95	1 430	2	4.49	

CONTINUED →

BILL OF REINFORCING STEEL FOR BARRIER AND SIDEWALK

MARK	TYPE	PIN DIAMETER	LENGTH	No.	MASS	BENDING DIAGRAM
S1505-7	BENT	95	1 480	2	4.65	
S1505-8	BENT	95	1 530	2	4.80	
S1505-9	BENT	95	1 585	2	4.98	
S1505-10	BENT	95	1 635	2	5.13	
S1506-1	BENT	95	1 180	2	3.71	
S1506-2	BENT	95	1 230	2	3.86	

TOTAL MASS OF REINFORCING STEEL: 740.62 kg



SIDEWALK PLAN

SCALE 1:30

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REVISION:	REVISION:
0	2023-01-30 ISSUED FOR TENDER MB

SEAL:

ENGINEERS GEOSCIENTISTS MANITOBA
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 No. 5750

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DATE: 2023-01-30

APPROVED BY: MB

CHECKED BY: EH

DRAWN BY (OPTIONAL): FD

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25mm

DISCIPLINE: BRIDGE

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 T 204-477-6650 | www.wsp.com

PROJECT NUMBER: 221-07931-00

CLIENT: *The City of Morden*

City of Morden
 195 Stephen Street, Morden, Manitoba R6M 1V3
 T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE: TL-4 COMBINATION BARRIER BRIDGE RAIL DETAILS (SHEET 3 OF 3)

PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 21

REV: 0

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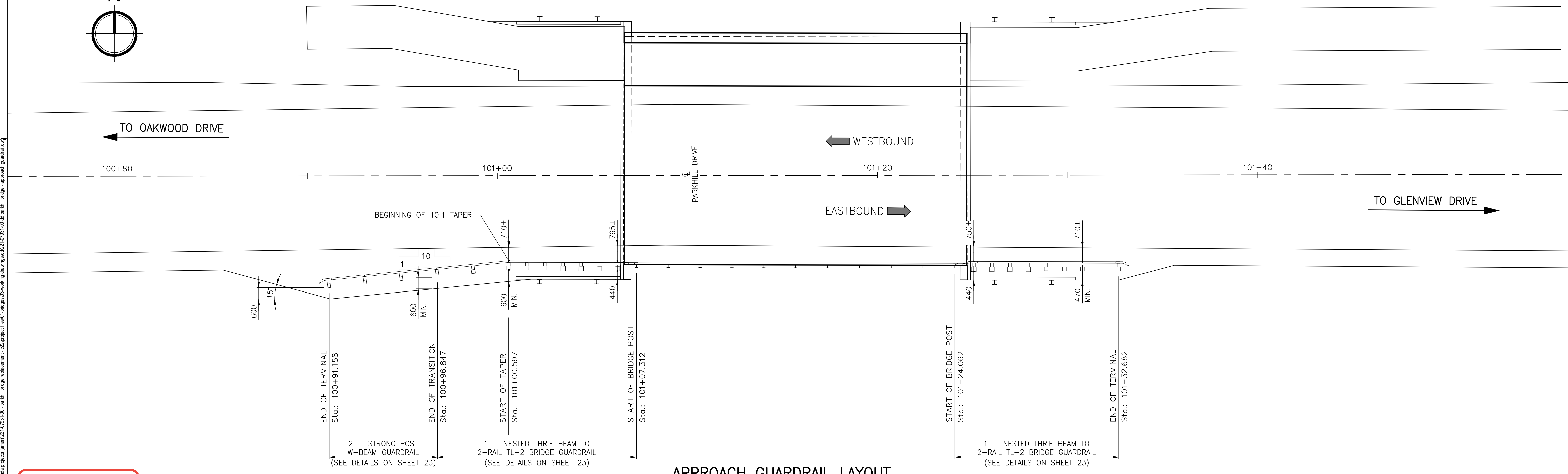
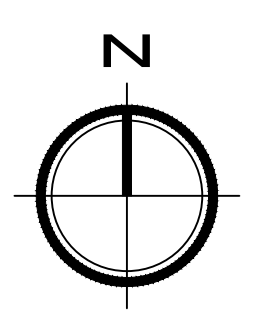
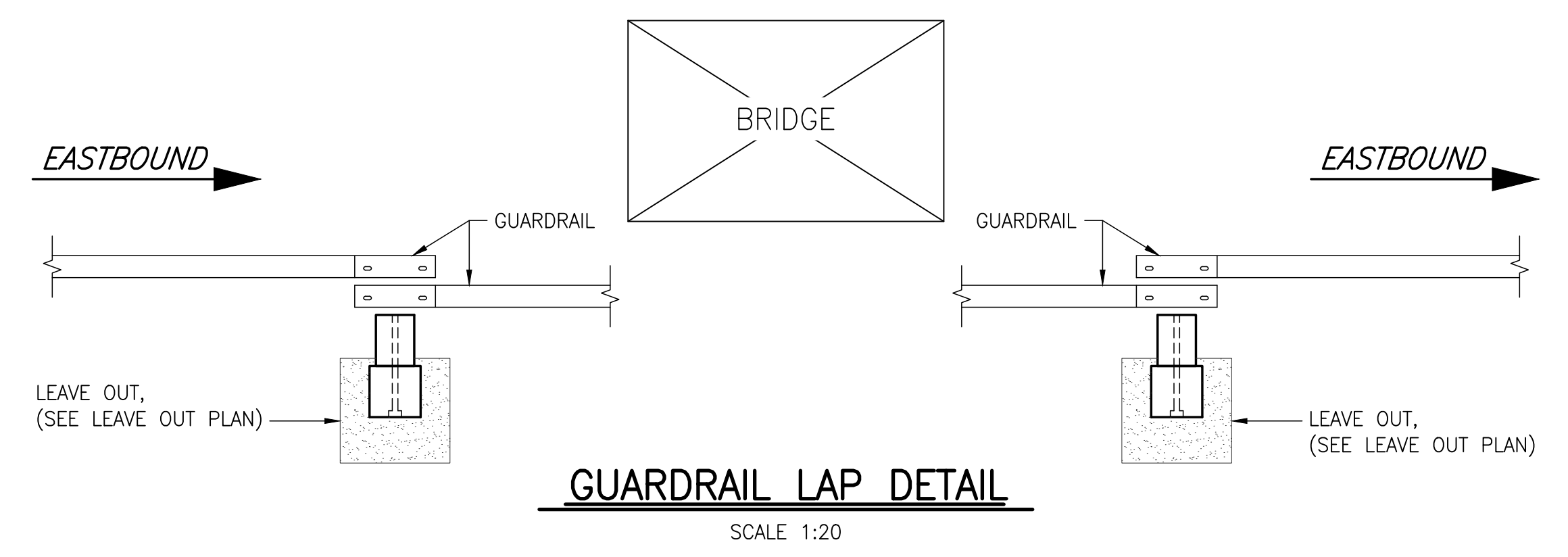
FOR TWO APPROACH GUARDRAILS (TWO SIDES)

MARK	No.	DESCRIPTION	SIZE	LENGTH	REMARKS	VOLUME
TPDB01	8	W-BEAM TIMBER BLOCKOUT	200 x 150	360	AS DETAILED ON MI STANDARD DRAWINGS	0.086
TPDB02	12	THRIE BEAM TIMBER BLOCKOUT	200 x 150	554	"	0.199
TPDE02	4	TIMBER GUARDRAIL POST	200 x 150	1 830	"	0.220
TPDE05	8	TIMBER GUARDRAIL POST	200 x 200	1 830	"	0.586
TPDE07	8	TIMBER GUARDRAIL POST	250 x 250	1 830	"	0.915
Total Volume:						2.01 m³

BILL OF MISCELLANEOUS METAL

FOR TWO APPROACH GUARDRAILS (TWO SIDES)

MARK	No.	DESCRIPTION
TSTB11	2	NESTED THRIE BEAM TO 2 RAIL TL - 4 BRIDGE GUARDRAIL
		EACH NESTED THRIE BEAM CONSTRUCTED FROM:
		1 - PC. MK. "TRTE01b", THRIE BEAM TERMINAL CONNECTOR
		2 - PC. MK. "TRTM04a", 4-SPACE THRIE BEAM GUARDRAIL
		1 - PC. MK. "TRWT01a", W-BEAM TO THRIE BEAM TRANSITION SECTION
		1 - PC. MK. "TRWM02a", 2-SPACE W-BEAM GUARDRAIL
		32 - PC. MK. "TFBB01", GUARDRAIL BOLT (38 mm LONG) AND RECESSED NUT
		14 - PC. MK. "TFBB04", M16 X 2 THREADED PITCH BOLT, 460 mm LONG
		14 - PC. MK. "TFWC16a", 17.25 mm I.D. PLAIN ROUND WASHER
TSGR04b	2	STRONG - POST W-BEAM GUARDRAIL
		EACH STRONG - POST W-BEAM CONSTRUCTED FROM
		1 - PC. MK. "TRWM02a", 2-SPACE W-BEAM GUARDRAIL
		8 - PC. MK. "TFBB01", GUARDRAIL BOLT (38 mm LONG) AND RECESSED NUT
		2 - PC. MK. "TFBB04", M16 x 2 THREADED PITCH BOLT, 460 mm LONG
		2 - PC. MK. "TFWC16a", 17.25 mm I.D. PLAIN ROUND WASHER
		SUPPLIED BY CONTRACTOR
	8	90 MM LONG NAILS (GALVANIZED)



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REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

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ORIGINAL SCALE: AS NOTED
APPROVED BY: MB
CHECKED BY: EH
DRAWN BY (OPTIONAL): FD

DATE: 2023-01-30

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

DISCIPLINE: BRIDGE

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T 204-477-6650 | www.wsp.com

PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

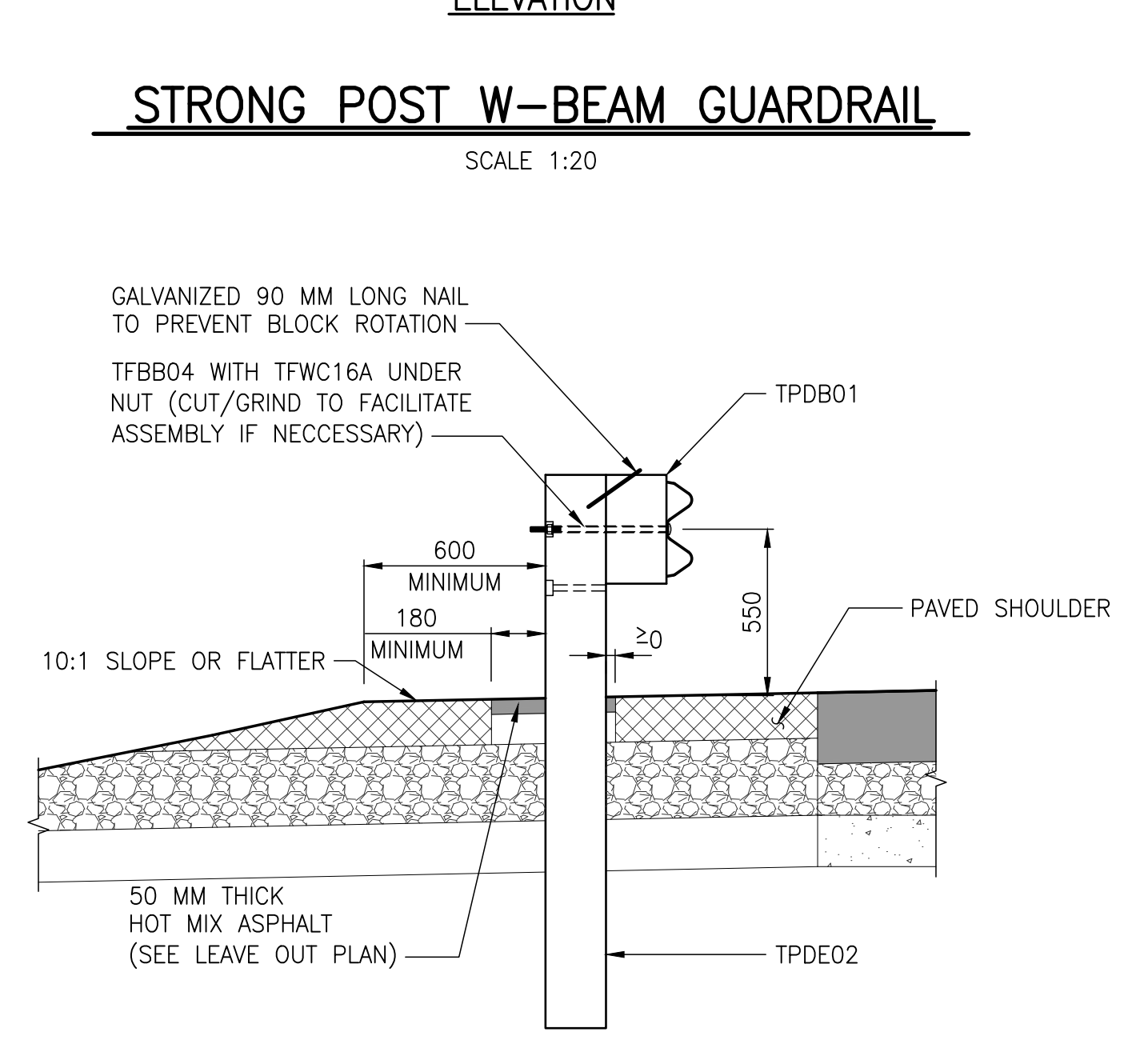
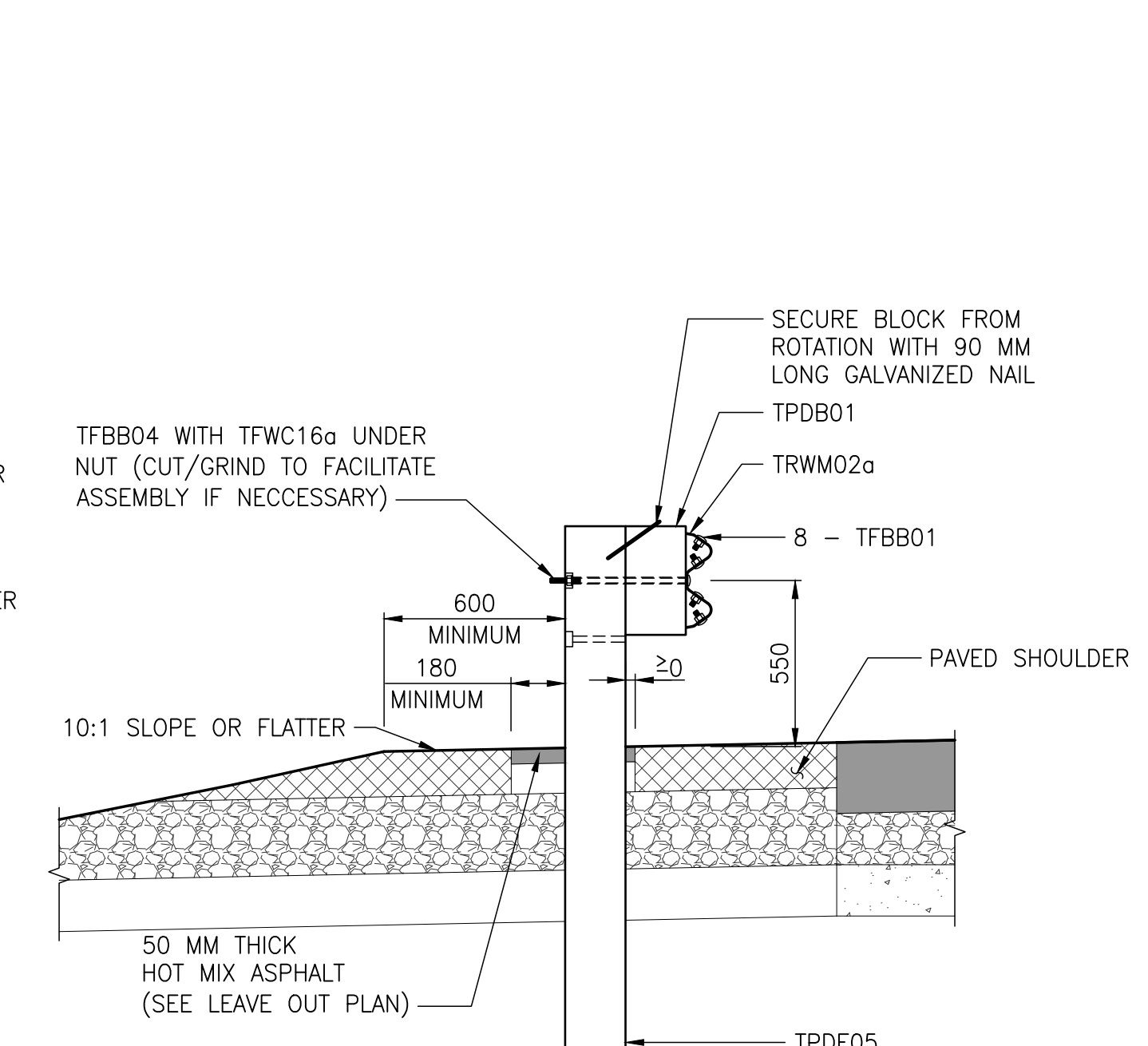
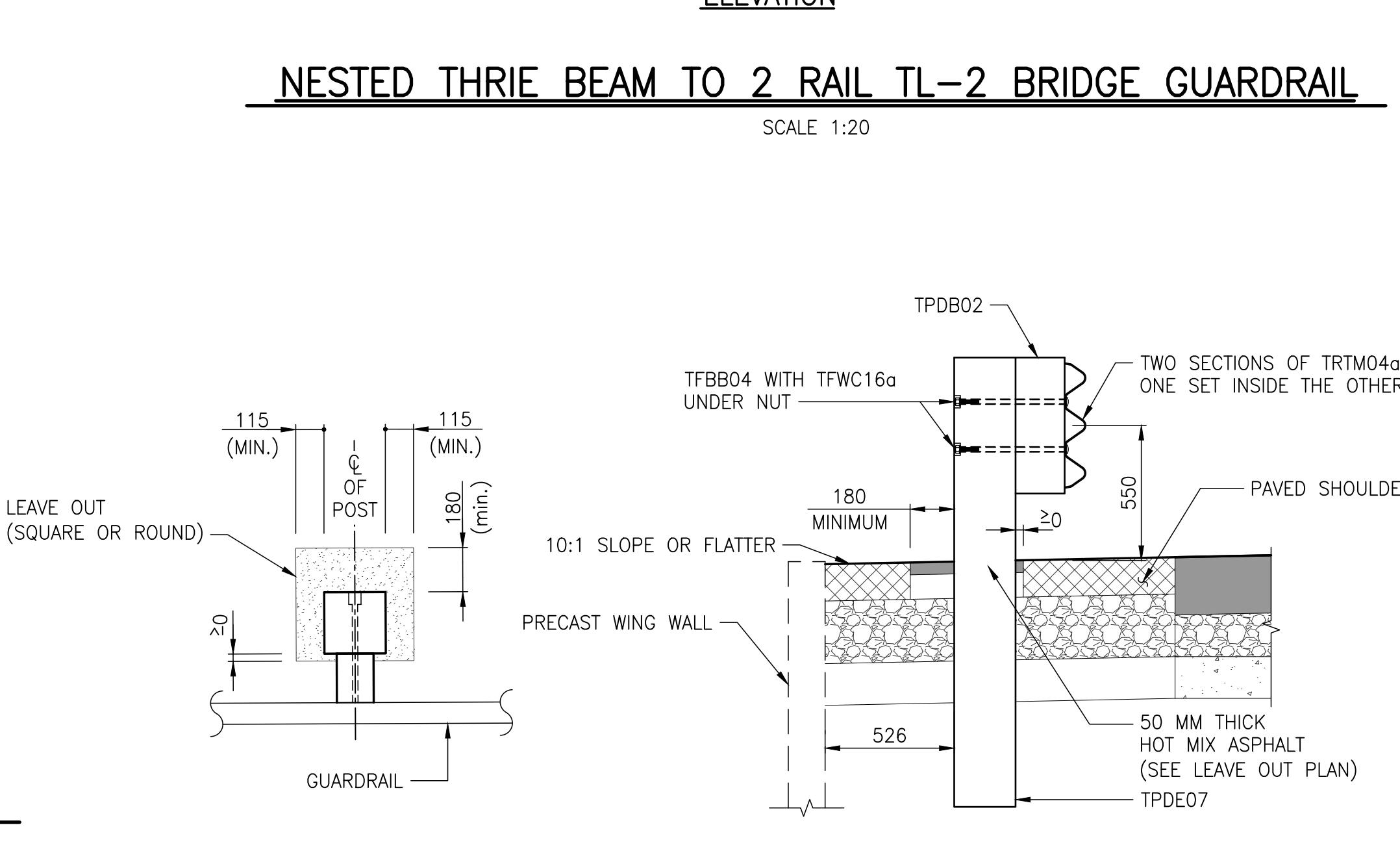
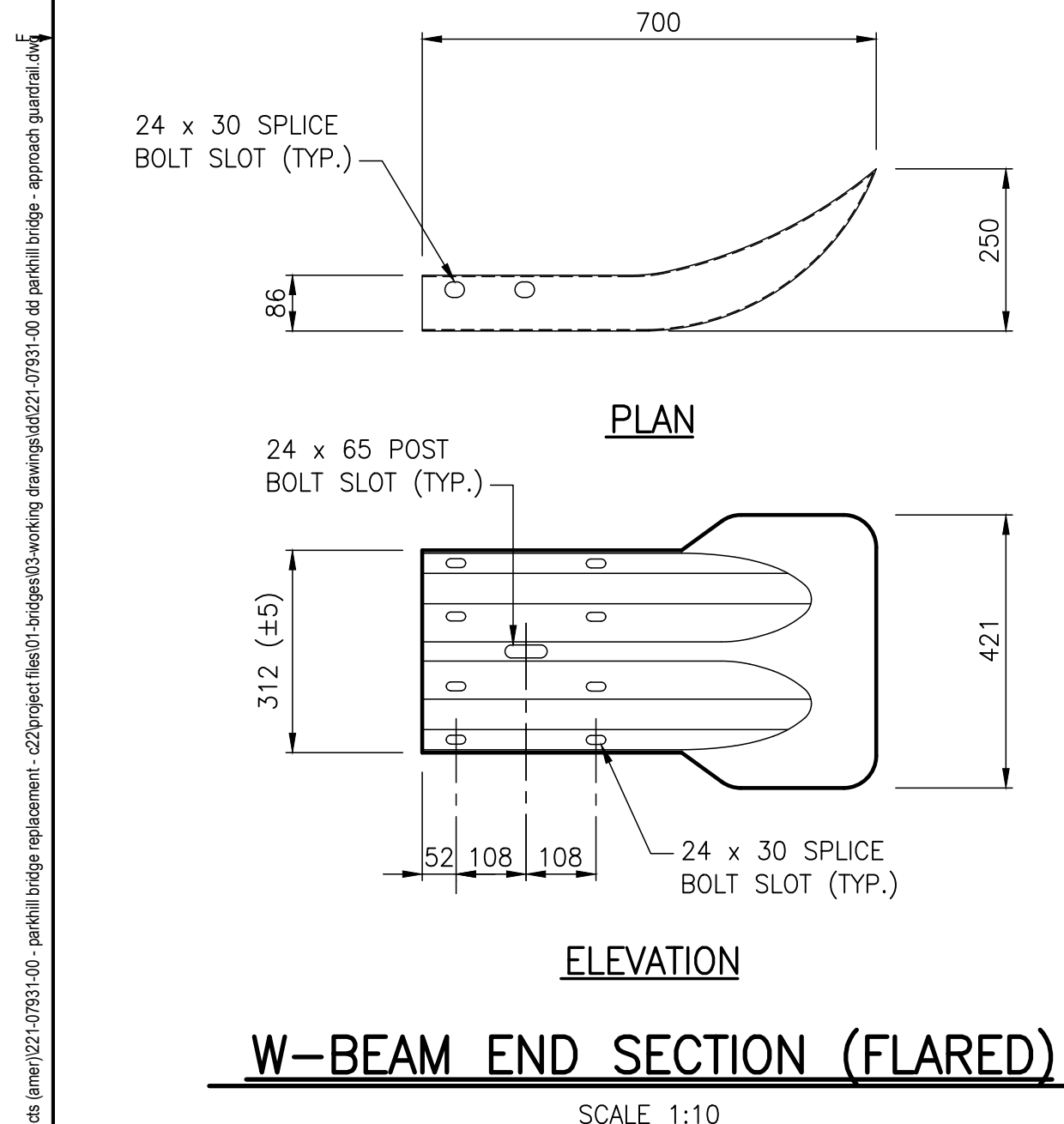
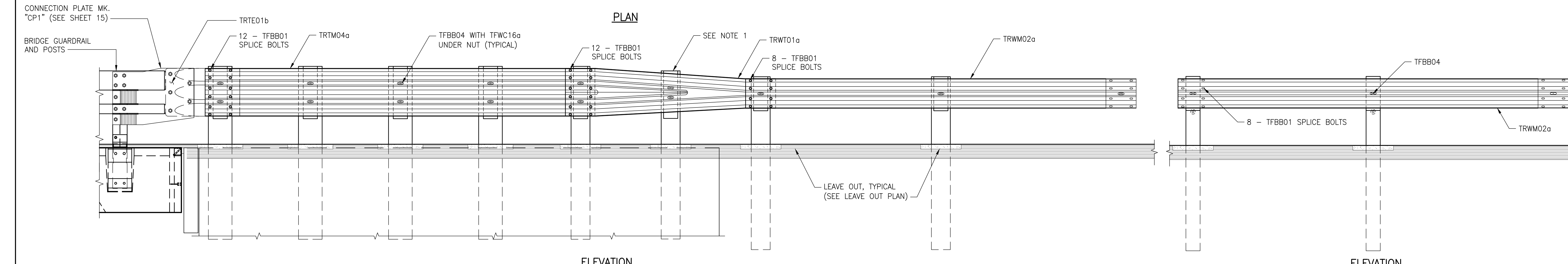
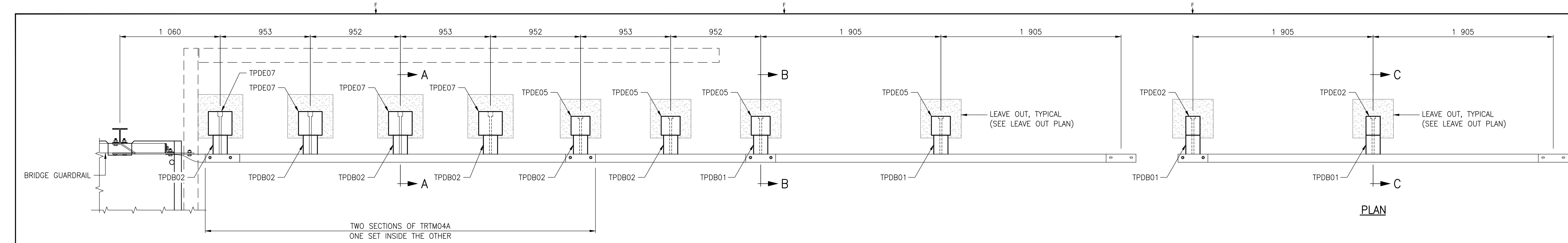
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PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 22

REV: 0

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REVISION:	REVISION:
0	2023-01-30
ISSUED FOR TENDER	MB
DATE	DESCRIPTION
BY	REV
DATE	DESCRIPTION
BY	

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ORIGINAL SCALE: AS NOTED

APPROVED BY: MB

CHECKED BY: EH

DRAWN BY (OPTIONAL): FD

DATE: 2023-01-30

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DISCIPLINE: BRIDGE

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PROJECT NUMBER: 221-07931-00

CLIENT:

The City of Morden

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE:

APPROACH GUARDRAIL
DETAILS

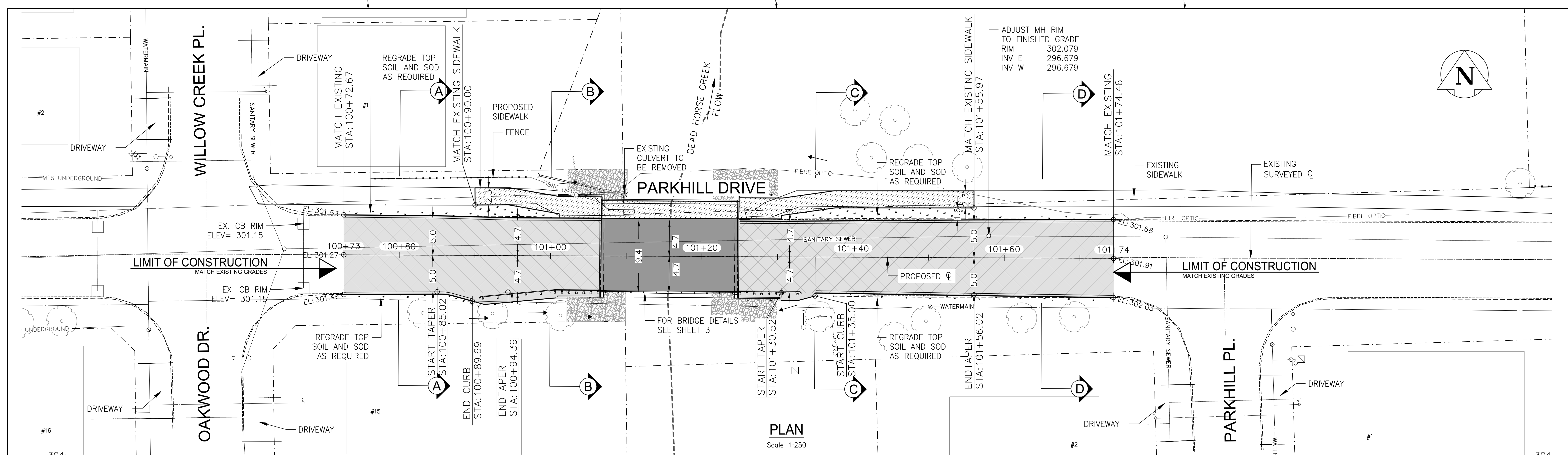
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PARKHILL DRIVE
BRIDGE REPLACEMENT
OVER DEADHORSE CREEK

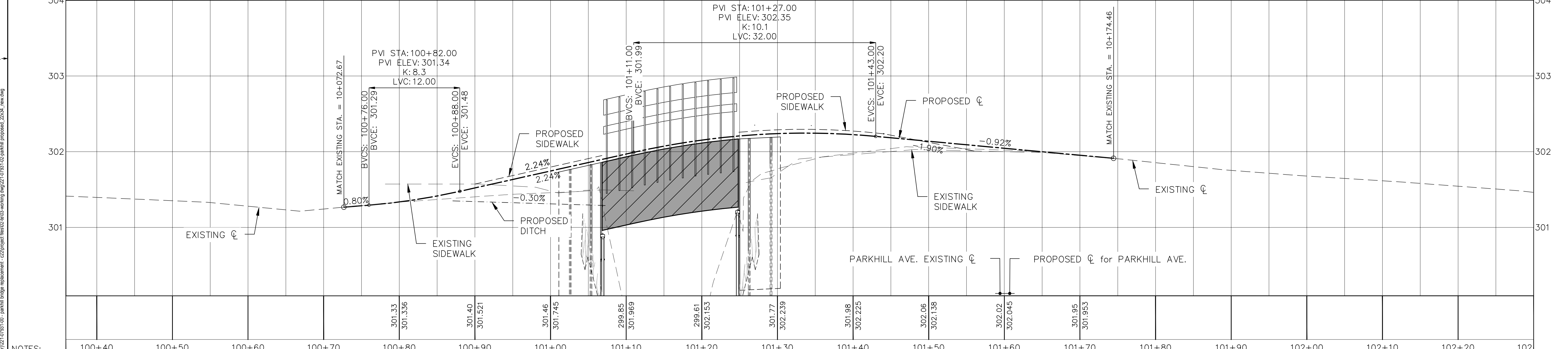
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PLAN
Scale 1:250



PROFILE
Scale 1:250
Scale 1:25

- NOTES:**
1. ALL WORK AND MATERIALS TO BE IN ACCORDANCE WITH THE LATEST REVISION OF THE CITY OF MORDEN AND MANITOBA INFRASTRUCTURE STANDARD CONSTRUCTION SPECIFICATIONS.
 2. CONTRACTOR TO CONFIRM THE LOCATION OF ALL UTILITIES/SERVICES IN THE FIELD PRIOR TO CONSTRUCTION.
 3. LEGAL SURVEY NOT COMPLETED, PROPERTY LINE INFORMATION SHOWN ACQUIRED FROM DATA MB <https://geoportal.gov.mb.ca/>
 4. ALL ROADWAY DIMENSIONS SHOWN ARE TO BACK OF CURB.
 5. EXISTING ASPHALT TO BE PLANED AS SHOWN OR AS DIRECTED BY CONTRACT ADMINISTRATOR
 6. ALL PRIVATE WALKWAYS AND ACCESSES TO BE ADJUSTED TO NEW SIDEWALK OR TOP OF CURB ELEVATION, AS DIRECTED BY THE CONTRACT ADMINISTRATOR.
 7. MODIFIED LIP CURB AND GUTTER TO BE CONSTRUCTED AT ALL ACCESS.
 8. CONTRACTORS TO TAKE PRECAUTIONARY STEPS TO PROTECT EXISTING TREES WITHIN THE LIMITS OF CONSTRUCTION FROM DAMAGE FROM CONSTRUCTION ACTIVITIES AS OUTLINED IN THE SPECIFICATIONS.
 9. LAMP STANDARDS, HYDRO POLES, AND ANCHORS THAT REQUIRE TEMPORARY SUPPORT, REMOVAL OR REPLACEMENT, TO BE DONE SO AT THE EXPENSE OF THE CONTRACTOR AS NECESSARY.
 10. ALL BOULEVARDS TO BE SODDED UNLESS OTHERWISE NOTED.
 11. ADJUST ALL WATER VALVES, HYDRANTS, MANHOLES, AND CATCH BASINS IN WORK AREA TO GRADE.

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REVISION:	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB

EXISTING	LEGEND-PLAN	PROPOSED	LEGEND-PLAN	PROPOSED
---	WATER MAIN	---	DRAINAGE	---
---	LAND DRAINAGE	---	TOP SOIL AND SOD	---
---	SEWER	---	ASPHALT	---
---	WASTE WATER SEWER	---	MILL AND FILL	---
---	HYDRO	---	HP	HYDRO POLE
---	PROPERTY LINE	---	HP	HYDRO POLE W/ LIGHT
---	CURB	---	---	HYDRO POLE ANCHOR WIRE
---	LIP CURB	---	---	LIGHT STANDARD
---	GUTTER	---	---	CATCH BASIN
---	LIP GUTTER	---	---	WATER CURB STOP
---	SIDEWALK	---	---	WM CONTROL VALVE
---	FENCE	---	---	WW CONTROL VALVE
---	EDGE OF ASPHALT	---	---	SEWER MANHOLE
---	EDGE OF CONCRETE	---	---	

SEAL:

**ENGINEERS
GEOSCIENTISTS
MANITOBA**

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APPROVED BY: DL
CHECKED BY: TP
DRAWN BY (OPTIONAL): TW
DISCIPLINE: ROADS

DATE: 2022-01-30
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25mm

PROJECT NUMBER: 221-07931-00

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City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

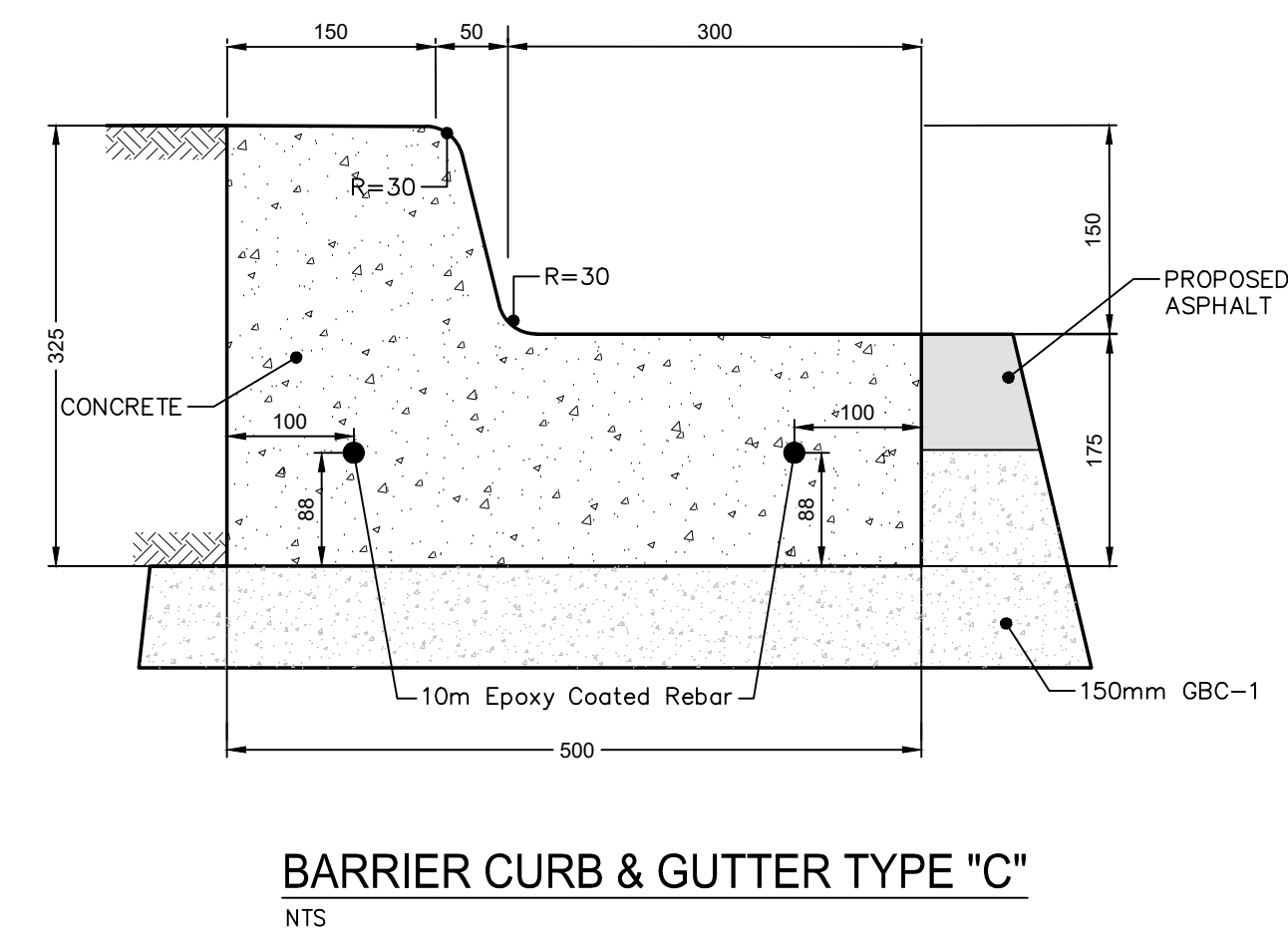
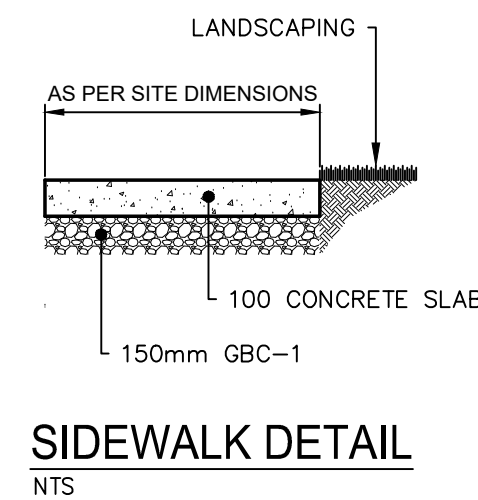
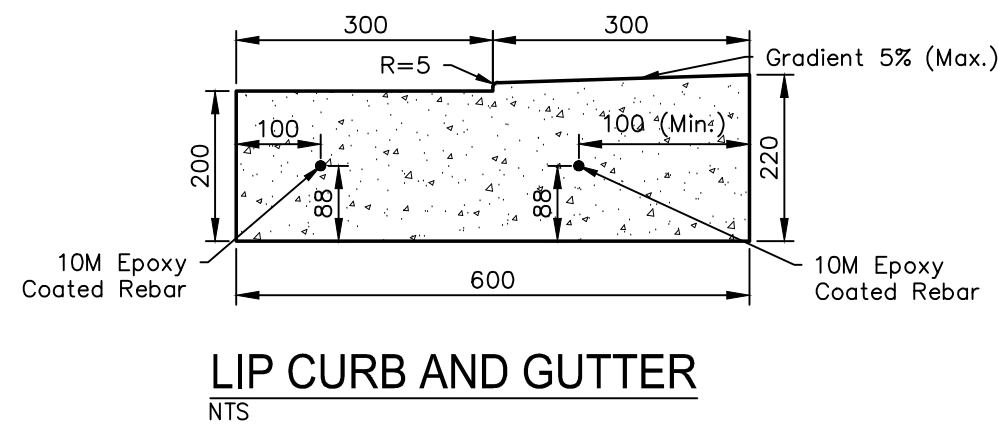
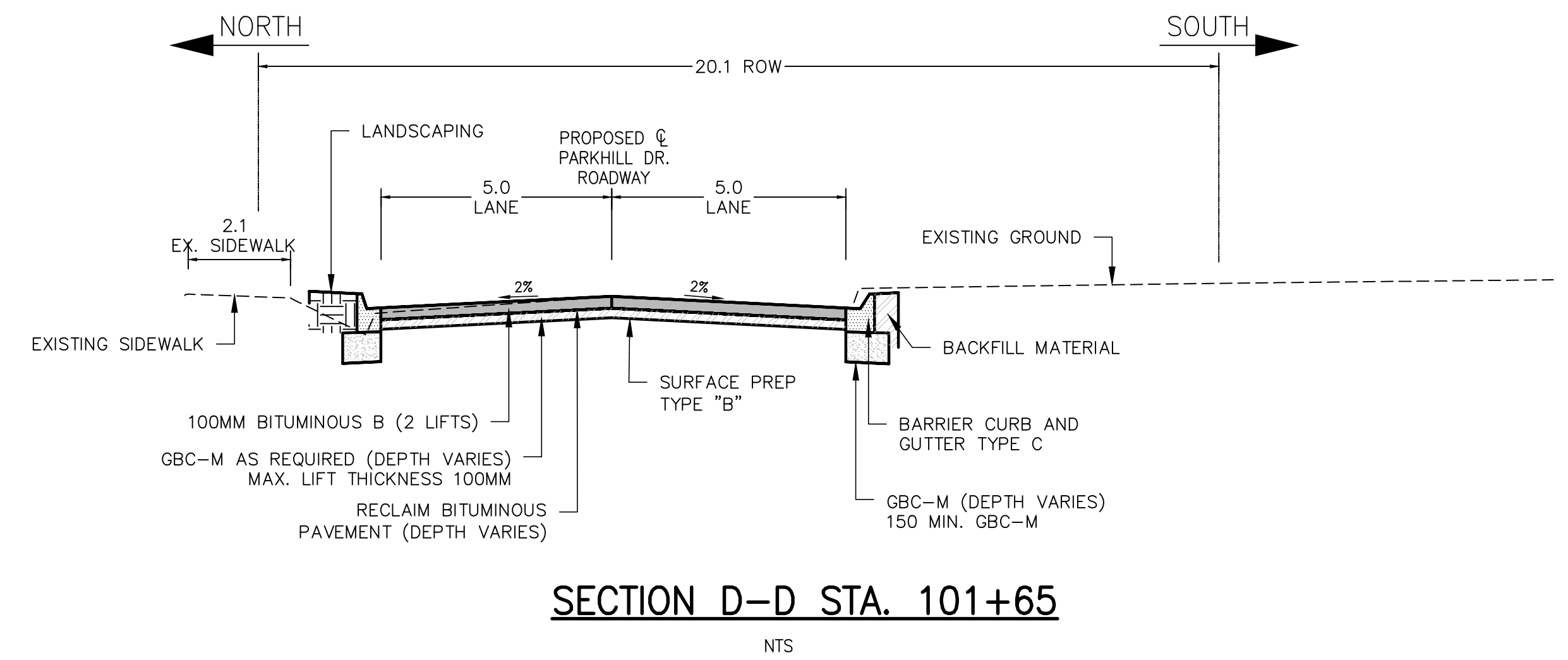
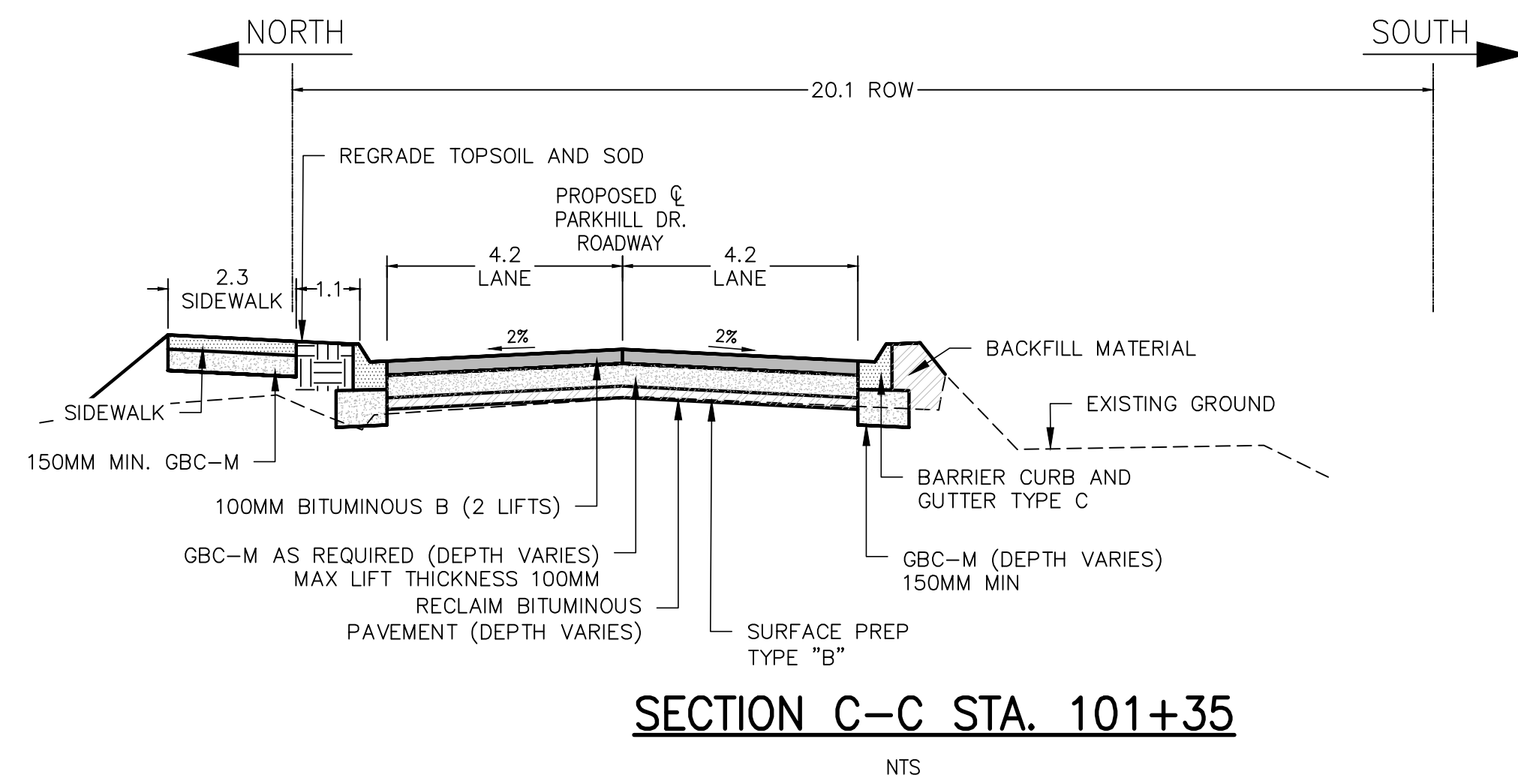
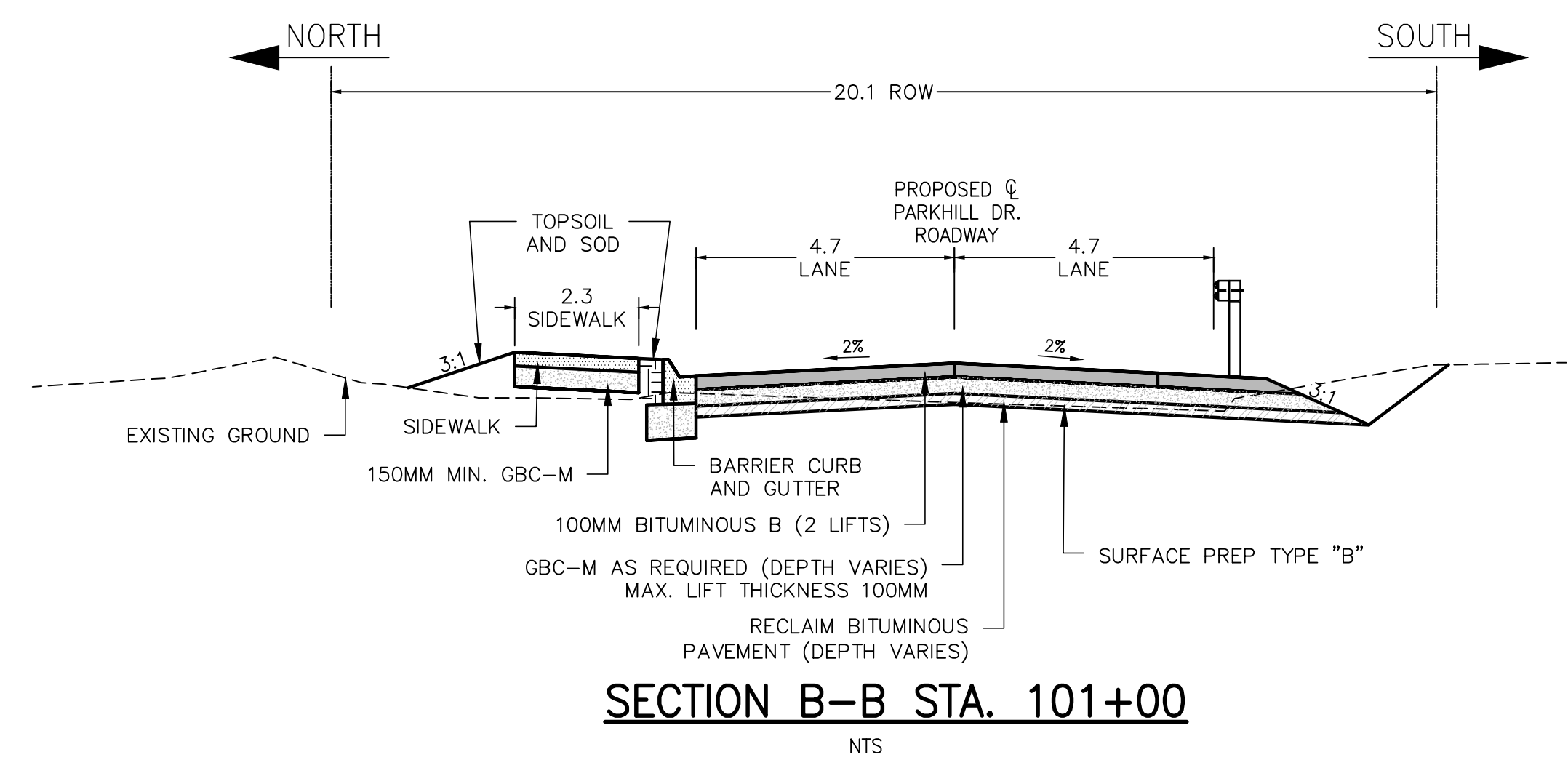
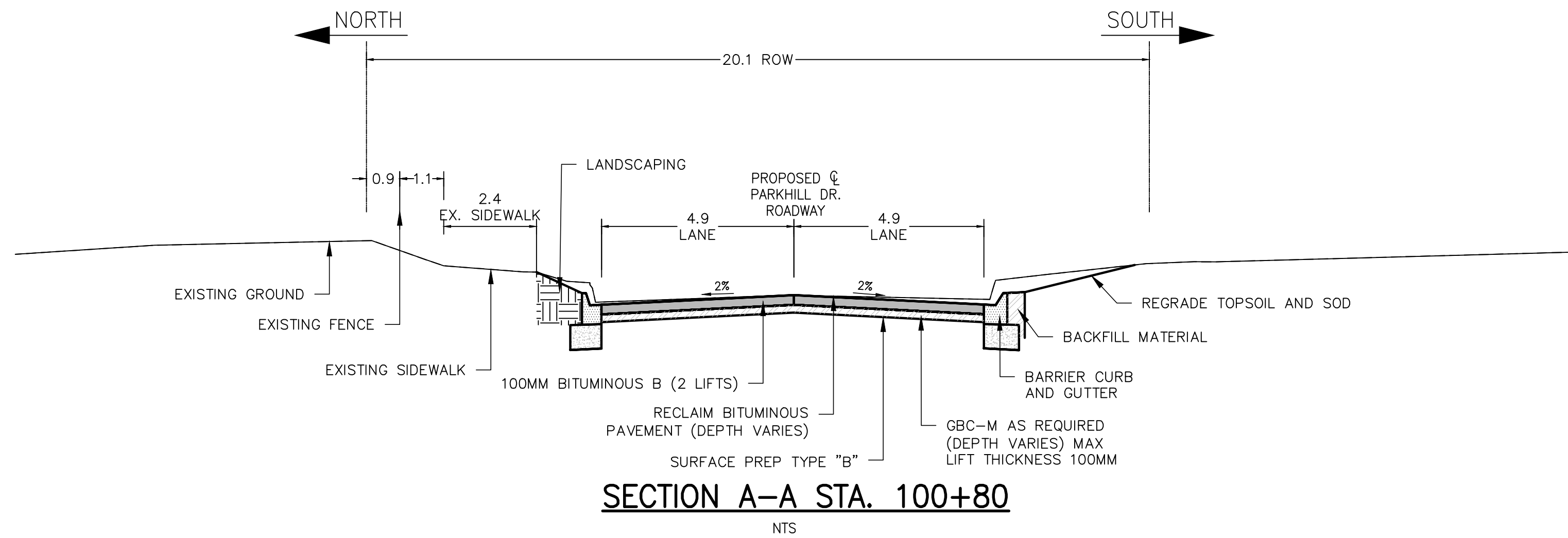
TITLE: **PLAN AND PROFILE**

PROJECT: **PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK**

DRAWING NUMBER: **24**

REV: **0**

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NOT FOR CONSTRUCTION

REV	DATE	DESCRIPTION	BY	REV	DATE	DESCRIPTION	BY
0	2023-01-30	ISSUED FOR TENDER	MB				

SEAL:

**ENGINEERS
GEOSCIENTISTS
MANITOBA**
Certificate of Authorization
WSP Canada Inc.
No. 5750

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ORIGINAL SCALE: 1:250
APPROVED BY: DL
CHECKED BY: TP
DRAWN BY (OPTIONAL): TW

DATE: 2023-01-30

IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.

25mm

DISCIPLINE: ROADS

WSP Canada Inc.
1600 Buffalo Place, Winnipeg, Manitoba R3T 6B8
T 204-477-6650 | www.wsp.com

PROJECT NUMBER: 221-07931-00

CLIENT: *The City of Morden*

City of Morden
195 Stephen Street, Morden, Manitoba R6M 1V3
T 204-822-4434 | www.mymorden.ca

CLIENT REF. #: --

TITLE: CROSS SECTIONS AND DETAILS

PROJECT: PARKHILL DRIVE BRIDGE REPLACEMENT OVER DEADHORSE CREEK

DRAWING NUMBER: 25

REV: 0

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